The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LIV, NO. 21 CHICAGO, ILLINOIS MAY 21, 1910

Original Articles

THE CURE OF EARLY PARESIS*

CHARLES L. DANA, M.D., LL.D.

NEW YORK

In a paper read before this society five years ago,[1] I made a contention that it was possible to arrest, and probably to arrest permanently, certain cases of paresis when they were observed in the earliest stages and submitted to prompt and prolonged treatment. To the objection that the cases cited in illustration of my point, were not really cases of paresis, but of cerebral syphilis or "pseudoparesis," I could answer only by contending that there were no possible criteria by which we could distinguish "pseudoparesis" and certain forms of cerebral syphilis from paresis itself, except by saying that when the patients recovered, the cases were false, and when the patients died the cases were real. In the pseudoparetic cases as in true cases, we have headaches, convulsions, syncopal and aphasic attacks, disturbance of the pupillary reflexes, tremors, cranial nerve palsies, even attacks of hemiplegia, lymphocytosis of the cerebrospinal fluid, and positive reaction to Wassermann's test. In each kind of case also, we find changes in character, increased irritability, inability to conduct business affairs, defects of attention, somnolence, confusion and quick exhaustibility of the mental processes on exertion. In cases in which paresis is firmly established, with grandiose delusions, real dementia, marked facial and tongue tremors, speech defects, involvement of the pyramidal tracts. I make no claim that the disease can receive, at the most, more than a remission.

The clinical facts on which my contention is based, have been so abundant and positive since I first wrote on this subject that it seemed almost unnecessary to emphasize the point further. I am led to do so, however, because my view has been misunderstood by some who have jumped to the conclusion that I have asserted that paresis can be cured when fully developed; also, because my view as to the essential unity of nervous syphilis and parasyphilis has been so strongly confirmed by the discovery of the pale spirochete and the evidence of its activity by Wassermann and other tests in parasyphilitic conditions.

The observations of Drs. Noguchi and Moore[2] show that in general paresis and in cerebral and nervous syphilis, there is a positive reaction both to the butyric acid and the Wassermann test; also that there is a practically equal evidence of lymphocytosis in the cerebrospinal fluids. Similar results were obtained by Dr. Rossanoff[3] in his observations recently presented before the New York Academy of Medicine. Dr. Kaplan's observations presented at the same time lead to the same conclusions. It is very well established, then, that so far as the blood and the cerebrospinal fluid tests go, there is no qualitative difference in the reactions between paresis and so-called syphilis of the nervous system. There is indeed a rather stronger and more positive reaction in paresis than in the ordinary syphilis of the nervous system.[4]

The attempt to find a test which should distinguish between paresis and nervous syphilis or "syphilitic neurasthenia," has been made by Nonne and some of his followers. The most recent observations regarding the utility of what is known as the Phase I Test of Nonne failed to show that it is of any distinct value in distinguishing between these two conditions (Noguchi and Moore[2]). It follows, then, that since there is an essential underlying unity between true paresis, and "luetic neurasthenia," "pseudoparesis," "nervous syphilis," there is no reason to suppose that if we can cure one, we can not also forestall and even cure the other. This is what I assert to be possible and also, that it is not infrequently done. Over and over again, it has been my experience to see luetic patients suffering in almost the same way, nervously and mentally, and yet, in one case, after a time, a true paresis develops, and in the other case it does not. And, furthermore, it has been my experience to see patients who have, clinically, developed nearly all the signs of paresis, improved, and remained practically well for years.[5]

---

* Read before the New York Psychiatrical Society, Nov. 3, 1909.

1. Dana, C. L.: Curability of Early Paresis, THE JOURNAL A. M. A., May 6, 1905, xliv, 1413.

2. Noguchi, H., and Moore, J. W.: The Butyric Acid Test for Syphilis in the Diagnosis of Metasyphilitic and Other Nervous Disorders, Jour. Exper. Med., July 17, 1909, abstr. in THE JOURNAL A. M. A., Aug 14, 1909, liii, 591.

3. One of Dr. Rossanoff's conclusions is the following: "Inasmuch as the Wassermann reaction and the butyric acid reactions seem to indicate syphilis only when it exists in an active or potentially active form, their regular occurrence in general paresis would tend to prove that that disease is a manifestation of active syphilis, of activity of the *Spirochæta pallida*. While the evidence for this view is not as yet complete, it is sufficient to justify its being used as a basis of therapeutic essay." Rossanoff also cites a case which was diagnosticated general paresis. The patient, however, recovered under treatment by mercuric injections, whereupon the diagnosis was changed to cerebral syphilis. While it cannot be proved, clinical experience in other cases justifies one in saying that if this patient had not received treatment he would have died with the symptoms of paresis. Cases like this have occurred in my experience and have been potent in forcing me to my conclusions as to the nature and management of this disease.

4. Apelt's later observations (Arch. f. Psychiat., xlvi, No. 1) only show that the "Phase I" or globulin reaction does not occur so often in so-called cerebral lues or luetic neurasthenia as it does in tabes and paresis, but it does occur, and all the serum and blood tests indicate only a quantitative, not a qualitative, difference between the conditions.

5. Sometimes cases which present mainly the appearance of cerebral syphilis do not improve under treatment, but go on steadily to a fatal termination with all the symptoms of paresis. Two patients came under my care at about the same time, beginning in the same way. One is now apparently in active health; the other died of paretic dementia. There must, then, be some plus factor in the matter which is potent to bring about the unfavorable result. This may be inadequate or belated treatment, or it may be a more degenerate, unstable brain. The luetic poison quickly brings about hopeless toxic changes in abiotrophic cells. Paresis that is fatal, then, is that in which the luetic infection is severe and uncontrollable, or that in which the brain-cell, being congenitally weak, easily falls prey to the toxin. This is the only difference which I can see between cerebral syphilis and "parasyphilis."

The ordinary, and perhaps I should say asylum view of prognosis of paresis has been recently presented by Dr. Green,[6] who made a very careful study of 200 cases, with reference to this point. He puts the limit of the duration of the disease at five years, this occurring only in the young; and he does not speak even of the possibility of cures, or long remissions. Such a view expresses, I think, a narrow and misleading conception of the malady, for paresis exists sometimes for years before it reaches the alienist or the hospital. A writer in one of the medical weeklies, during the past summer, also states unequivocally that paresis is not only never cured, but surely and always kills, i. e., it is not even permanently arrested. This also expresses what I should term a very juvenile view of paresis. Quite appropriately this writer quotes a French novelist in support of his position, but does not, I think, get any apperception of some more serious writers. As against Guy de Maupassant, I would quote Alzheimer, who states that he has most positive evidence that paresis has remained unprogressive for many years.

I wish now to put on record the final history of the cases which I reported five years ago, as an illustration of arrest in preparetic states. The details of the early history of the cases are given in the article referred to.[1] I shall add a few further reports of cases illustrating the clinical fact which I am trying to prove, for I know that it is only by the presentation of such data, accurately and impartially given, that any conviction can be produced; the minds of many alienists, at least, seem to be absolutely fixed in an attitude of pessimism towards the prognosis of paresis in any of its stages. The cases are referred to in the order they were reported originally.

CASE 1.—A broker, aged 40, had an attack of melancholia, with the somatic symptoms indicating paresis; that diagnosis was made in his case. He had tremors and Argyll-Robertson pupils, but he had shown no dementia. He improved in the sanitarium and kept well for three years afterward, at which time I reported the case. He continued well for four years more, but he lived a life of great self-indulgence. He had losses in business and finally developed genuine symptoms of paresis and died in about a year. He had had, therefore, a remission of seven years, during which he was in every respect a normal man.

CASE 2.—The patient had continued well for four years from the time when I saw him, when his symptoms were marked. He had had a luetic infection twelve years before. His symptoms were those of convulsions, speech disturbance, feeble memory and depression. He has continued well, and is now in active business. It is eight years since he recovered.

CASE 3.—A man, aged 34, had a speech disturbance, Argyll-Robertson pupils, facial tremor and depression to the point of melancholia. When I reported his case he had been attending to his work and was well for the last three years. I saw him again in the past year and he had continued well, so that his remission has thus far lasted eight years.

CASE 4.—A lawyer, aged 30, had all the evidences of a beginning tabo-paresis. The progress of his disease was arrested, and for seven years he has been able to do his professional work with a fair degree of success.

CASE 5.—A broker, aged 40, had had an infection, his trouble began with a violent epileptic attack, followed by periods of maniacal excitement. For a year he had a great deal of mental irritability and depression, and a certain degree of weakness of comprehension and judgment. He has now continued well for six years since the first attack.

CASE 6.—A man, aged 43, a broker, lost all his money in Wall Street, and then tried to steal some to make good. He developed a melancholia and killed himself.

CASE 7.—This was one of those types of luetic infection, followed by anxious depression or a mild form of hypochondriacal melancholia. For twelve years the patient used to have an injection of mercury, every two weeks. It is now nine years since he was under systematic treatment and he continues well.

The following further cases illustrate the preparetic state and its possible outcome:

CASE 8.—T. S., aged 46, lawyer, came to me in October, 1906. There was no hereditary history of importance. His father lived to 70, his mother died at 60, of an accident. The patient was married and had three healthy children. He had contracted lues about twenty-three years before coming under my observation. He suffered severely and though he was treated, his health broke down and he had to rest from business. After his recovery, i. e., for about twenty years, he had been quite well and had seen nothing of doctors until his present illness. About three and one-half years before I first saw him he suffered from sexual weakness, which had gradually progressed till he had become practically impotent. Of late his bladder had been a little weak. Two years before coming under my care he had lost consciousness suddenly and was aphasic for two days. His capacity to speak in court had been lessened since then. One year before the time when I saw him he had an attack of severe vertigo. Since then his mental powers had been lessened. He could not work long, could not concentrate, was forgetful, and had attacks of vertigo. He was very somnolent, sleeping ten hours at night and in the afternoon. He was depressed, emotional and unable to do much work of any kind. His gait and stature were normal, speech clear, handwriting much impaired. The knee-jerks and ankle-jerks were present but uneven. The pupils were uneven and did not react to light, but did to accommodation. The left pupil was irregular in shape. The patient had no anesthesias, lightning pains or ataxia. There was tremor of the hands and the face showed distinct facial tremor. The main mental symptoms were incapacity to work, mental inadequacy, defective memory, emotional excitability (irritability and depression) and somnolence. The physical symptoms were changes in deep reflexes, Argyll-Robertson pupils, facial tremor, defects of handwriting, sexual impotence without local cause, as attested by Dr. Eugene Fuller, who saw him in consultation, and vesical weakness. It was six months before the patient improved very much but at the end of that time he was very much better, except of the sexual impotence, and the pupils. His memory was good, his somnolence and apathy better. A letter received from him recently states that he is well, nearly three and one-half years since I first saw him.

Such a case as this is illustrative of a type which I have also seen progress till all the marks of paresis are developed.

CASE 9.—J. E., aged 43, single, occupation engineer. The history furnished by his family physician, Dr. Parslow, is as follows: The patient's father died of Bright's disease, at 69; the mother was living in good health; he had four sisters all living. One had epilepsy for some years, but recovered. Three aunts died of tuberculosis.

The patient was always robust; used alcohol and tobacco moderately. His habits were excellent, with the exception of sexual excess, which undoubtedly made serious inroads on the patient's vitality. About three weeks after connection, in the latter part of 1901, three hard chancres appeared on the dorsum of the penis, followed by adenitis, roseola, etc. The secondary stage ran a mild course. Mercurial treatment was faithfully carried out. About one year after the primary sore, the patient was stricken with left hemiplegia. At this time, a neurologist saw him. Mercury by inunction was pushed. The motion of the left arm was seriously impaired, but improved. After the patient was up and around, it was noticed that he would fall asleep at his work, especially after eating; he was very hard to arouse mornings, even after ten or twelve hours' sleep. As he was in charge of complicated machinery, his employers had to displace him. His friends noticed that he acted queerly at times. Dr. Parslow never noticed any delusions or hallucinations. The patient wept easily, and his mental depression was marked; his countenance

6. Green: Jour. Ment. Sc., 1908 or 1909.

changed from a bright and intelligent to a dull and stupid expression. He was given iodids in large doses, but failed to improve.

When examined by me, he still showed some evidences of the left hemiplegia, the arm being somewhat contractured, and there were slight athetoid movements in the left hand. There was no anesthesia or ataxia. The reflexes were exaggerated, more on the left than on the right, but there was no clonus. The pupils were sluggish, but not actually of the Argyll-Robertson type. Mentally, he was simply very slow and forgetful; did not have even the ordinary school knowledge, nor could he recall the ordinary events of the day. He would fall asleep during the daytime and sleep all through the night. He had no cranial nerve palsies; no speech defects, but had a little tremor of the face and hands. He did not show any actual neglect of the person, and his sphincters were intact. He could read a little and write imperfectly. His condition had been gradually getting worse, notwithstanding large doses of the iodid of potassium, amounting to 120 grams a day.

The patient was put on hypodermic injections of salicylate of mercury, and gradually began to improve, and in about six months' time he seemed well, and went back to his work.

I saw him a year ago, five years after my first visit. He was then well mentally in every way. His speech was good, his memory clear, and he simply had some relics of his old hemiplegia.

This is a case of cerebral syphilis, but it was passing into dementia. The patient already had tremor, sluggish pupils, exaggerated reflexes. He was dull, slow, had lost his knowledge of things, was extremely forgetful, queer in actions, depressed, emotional, somnolent and partially demented.

CASE 10.—E. A. M., male, aged 52, married, with two healthy children, came to see me first in May, 1906, suffering from tabetic pains. He had had a luetic infection at the age of 20, and was thoroughly treated for two years; he had had no luetic manifestations since then. He had been a hard worker at the dry-goods business. His habits were good; he used no alcohol or tobacco in excess. In 1898 he broke down with what was called "nervous prostration," and was unable to work for about six months. Two years later, in 1900, he began to have the characteristic pains of tabes, and had been treated for these symptoms and these alone, since that time.

Status in 1906: The gait was normal; there was slight Brauch-Romberg sign present, slight ataxia of the hands to the finger-nose test. Argyll-Robertson pupils, unequal in size, knee-jerks and ankle-jerks absent, tremor of the facial muscles and of the hands, no hypotonia, no anesthesia, bladder slow, sexual function very weak, tachycardia, but no valvular lesion. Mentally, the patient was irritable and quite forgetful; he had a slightly exaggerated manner, was a little *exalté*, was easily confused, could not play cards without making mistakes, could not sign his name on account of nervousness and tremor. He was somnolent during the day, falling asleep at his desk, was not able to read except for a few moments, was unable to do his work well, becoming easily confused and exhausted. There was a general change in his character, so marked that his wife came to consult me about it. He had no delusions, but was somewhat depressed.

The diagnosis, in 1906, was tabes and developing tabo-paresis. November, 1909, after several months' rest and treatment part of the time at a sanitarium, the patient returned to business and he has continued at it ever since. I have seen him at intervals during the past three and a half years. He is now mentally normal; he is no longer forgetful and can attend to his work. He can write and dictate readily. Facial tremor is gone. The tabetic symptoms are the same, almost exactly, as they were three years ago.

CASE 11.—W. D., aged 30, married, denies infection. In 1902 he gradually developed a spastic paraplegia with bladder and sexual weakness, the disease taking the course of Erb's syphilitic spinal paralysis. In the fall the patient developed delusions of grandeur, and when examined by me he had all the somatic and mental symptoms of general paresis, with facial tremors, Argyll-Robertson pupils, and involvement of the pyramidal tracts. This diagnosis was confirmed by Dr. Frederick Peterson and the physician in charge of the institution to which the patient was committed. He was insane and delusional for nearly a year, but gradually improved, and has now been practically well of his mental trouble for over seven years. He has not known quite the mental vigor of his former years, and his spinal symptoms have remained about the same. The total duration of the condition is now nearly eight years.

This is a remission in general paresis, and it is not one of the class of cases on which I base my remarks. It is admitted by all that there may be long remissions in general paresis.

I could cite other cases from my notes, but I prefer to get the evidence of other neurologists, and Dr. Joseph Collins has kindly placed the two following cases at my disposal:

CASE 12.—A man, aged 45, stock-broker, unmarried, was seen May 31, 1904. He had had syphilis when 23, an apparently moderate infection, treated by a prominent specialist for three years and pronounced cured. When 31 years old the patient had an attack of diphtheria; when 38, an attack of typhoid fever.

The first symptom of the present disorder, of which the patient is cognizant, occurred in 1903. He was in bathing. The propinquity of a certain person was responsible for extreme erethism, followed after a long time by orgasm. The patient experienced a profoundly disagreeable sensation in the head, and had a feeling of confusion and syncope. Following this he was in bed for a fortnight, and his physician who treated him, said that he had a heat-stroke. After that time the patient was subject to periods of profound depression. He lacked initiative, was moody, sullen, unsociable, and impotent. He frequently made mistakes in his orders and thought he had to give up business. Depression was his worst symptom. The pupils were unequal; one knee-jerk was absent, and there was distinct slowing of speech. This man took an enormous amount of mercury, by hypodermic injections and inunctions, and is to-day practically well. The physical signs remain the same, save that the speech has become distinct. He is able to transact his business as well as ever.

CASE 13.—A man, aged 46, had syphilis when 21; he was rather alcoholic. When 38 years old he developed symptoms of mental confusion, associated at times with violence, but depression was his chief symptom. Gradually he became indifferent to his family, exhibited loss of self-control and was most easily excited and annoyed. Examination showed pupils that were unresponsive to light, slight tremor of the lips, tongue, and hands, and exaggerated knee-jerks. He seemed to have insight into his condition and explained his inability to work by saying that he was weak. He would frequently make mistakes in writing, however, and displayed evidences of marked forgetfulness. He was put under intensive mercurial treatment, and to-day, six years after I first saw him, he is running a store.

The question in all these cases, of course, comes up whether these patients really were suffering from paresis in an extremely early stage. Some authorities seem to take the position that we can never be sure we have a case of paresis until the patient is dead, and the characteristic anatomic changes are found in the cortex of the brain. This anatomic test of the existence of paresis, is an unworkable one, and would make the talents and acuteness of the clinician practically of no value. Besides, it seems to me to be utterly without foundation. I do not believe that in the very early stages of paresis any anatomic change exists which could be detected by the microscope, and if we have to wait for our diagnosis of the disease until these anatomic changes occur, I can well agree that the prognosis must always be hopeless. But it is my conviction that we can recognize the malady before any appreciable

changes do occur or, at least, changes which are beyond hope of repair or arrest. Let me illustrate this position by the following history:

CASE 14.—A young man, a lawyer, aged 33, was infected with syphilis about eleven years before he was seen by me. He was treated for the disease continuously for two years, and after that period, every six months, for about six years. He continued his professional work, and was very successful in it, until about a year before I saw him, when he suffered from symptoms of what was thought to be neurasthenia. He was treated on this basis, and went out West, took active exercise on horseback. He improved somewhat, but then became considerably worse, and was finally brought to me in January, 1909, when he had distinctly the symptoms of paresis—forgetfulness, inability to concentrate, confusion of ideas, irritability, a good deal of mental depression, and certain almost delusional ideas regarding the way in which he was treated by his friends. Physically, he had distinct and characteristic dysarthria, tremors of the face and hands, exaggerated reflexes, and Argyll-Robertson pupils. The Wassermann test was positive. He improved a little for a time, but at the end of the following summer he was distinctly demented and delusional, and had all the characteristic physical symptoms of general paresis. These progressed, and he is now in the third stage of the malady.

The point of interest in this case is this: On inquiring carefully about the patient's earlier years, I found that five years before I had seen him, he had had an attack of mental depression, of a somewhat hypochondriacal type, such as so frequently ushers in paresis. This had occurred without special cause, and in a man whose habits were good, and who had inherited a sound constitution. I further learned that after he recovered from this depression, he had been a little different in temperament and character, a little more irritable and unreasonable, a little more egotistical and expansive than usual, his friends thinking that he was simply rather more conceited and difficult to get on with than before. But, in the light of subsequent events, it seems clear that these were the mental forerunners of his later attack, because when the later attack came on, all these characteristics were simply very greatly exaggerated. Thus, it seems that this attack of paresis can be traced back to a period of five years, during which time the patient achieved a really brilliant success in his profession, transacting his work effectively, and not suffering from any physical troubles whatever. It seems incredible that during all these years of successful professional work and social activity, he had any serious degenerative changes in the cortex of the brain, which changes are supposed to be necessary to enable one to make a diagnosis of paresis.

If the history of cases of paresis could be traced back in all instances, to the very remotest beginning, I believe that in a good many instances this prolonged preliminary period of slight mental perversion might be discovered, and, in this case I think that if treatment had been undertaken along proper lines three years before or two years before, the malady might have been kept in check.

The onset of a parasyphilis, occurring in persons who have had an infection, takes place in different ways as follows:

1. Acute symptoms of syphilitic exudates in the brain, ending promptly or later in paresis, or ending in cure, with or without mental symptoms, or ending in some deterioration with final serious cerebral vascular changes.

2. Acute mental symptoms, maniac or melancholic, ending in cure or paresis.

3. Tabetic and paretic symptoms, ending in taboparesis or in tabes with arrest of paresis.

4. Insidious mental and physical deterioration, ending in paresis.

The above initial conditions all may or may not end in paresis, depending on treatment, the constitution of the patient, and the intensity of the infection. Often they go on until nearly every symptom of paresis appears, yet they are even then arrested. The clinical phenomena, from the beginning to near the end, are produced by the same pathologic agent, and often can be controlled by treatment, even when the signs are ominously identical with early symptoms of general paralysis. This is what I mean by "cure of early paresis."

53 West Fifty-third Street.

THE SOY BEAN AS AN ARTICLE OF DIET FOR INFANTS

JOHN RUHRÄH, M.D.
BALTIMORE

The soy bean, sometimes incorrectly called the soja bean, has attracted attention from time to time as an article of diet for Americans and Europeans, but the attention has been ephemeral and but few if any attempts have been made to place the bean on a practical scientific basis as an article of diet. The composition of this bean and the facts that it is free from starch and of high protein content led me to try it as an article of food for young children and infants, and a preliminary report was made before the American Pediatric Society[1] in May, 1909.

The high protein content of this bean, about 25 per cent., probably accounts in part for the small amount of other nitrogenous food taken by the Chinese and Japanese, as the soy beans, and articles of diet made from them, are used in nearly every meal by the natives of Japan and China; and, when one takes into account the composition of the bean and the amounts eaten, it will be found that the Oriental gets a fair amount of protein daily. This general and continued use of the bean demonstrates conclusively that the protein of the bean may be utilized in the body in place of that of other vegetables and of meats. All sorts of foods are made from the beans, such as gruels, soups and porridges, but it is chiefly used in the East in the form of a cheese-like substance of which many varieties are made. It is eaten as a vegetable and picked green and used as a salad.

When one considers the American taste for meat and its great abundance in this country, there is little probability of the soy bean replacing meat by coming into general use, but it will be found of value as a source of protein when meat is contraindicated and especially when, as in diabetic diets, the patient tires of meats. As to its use in diabetics Dr. Julius Friedenwald and I expect to publish shortly a more or less extended report of cases showing its great value in this connection.

In the feeding of infants and of some young children one difficulty is to supply sufficient protein in a form in which it can be digested and assimilated. Mothers' milk is often not available, and the protein of cows' milk may not be suited, or cannot be adapted to the infant's digestion or, owing to certain diseases, may be contraindicated; and it is in these difficult and abnormal cases that the soy bean would seem to have a place.

1. Arch. Pediat., July, 1909; abstr. in THE JOURNAL, July 10, 1909, p. 140.

To determine the true value of the soy bean in infant feeding it is necessary to have definite knowledge of the composition of the foods prepared from them, and some simple means of preparing food of definite composition at will. As soy beans are not available in most markets, and as their cooking is a tedious process, the possibility of making gruel flour from the soy bean was taken up with a firm which makes a specialty of making gruel flours, and after some experimenting a satisfactory flour was produced. This flour was then sent to a laboratory in New York for analysis, and the following results were obtained:

	Per Cent.
Protein (N. x 6.25)	44.64
Fat	19.43
Mineral matter	4.20
Moisture	5.26
Crude fiber	2.35
Cane sugar	0.34
Non-nitrogenous extract	14.78
Starch	None
Reducing sugars	None
Polarization normal weight due to optically active substance other than cane sugar (included in proteids and non-nitrogenous extract)	7.86°

The percentage of protein in this flour is almost one-third greater than the percentage of protein in the whole beans. This is caused by removing the coarse fibrous hulls which contain little protein.

A vegetable food of such composition certainly is remarkable when compared with round of beef, medium, which contains:

	Per Cent.
Protein	19.0
Fat	12.8
Moisture	60.7

Each ounce of this soy gruel flour yields about 13 grams of protein and 120 calories, and it can be used (1) as a gruel, (2) in broths, (3) in making biscuits or muffins. It may also be mixed with cereals, barley jelly, cream of wheat and the like.

Leaving out of consideration its use in diabetes both in adults and in children, the soy bean may be found of benefit in the following conditions as well as others:

In summer diarrheas and certain forms of intestinal disturbances a weak gruel (one or two level tablespoonfuls to the quart), made from the bean or, preferably, from the gruel flour made from the bean, will be found of great value. As a rule, it is well borne and digested and rarely causes either vomiting or an increase in the diarrhea. Barley or some other cereal should be added as suggested below. Later, when the food is to be increased, condensed milk or cows' milk may be added to the soy-bean gruel to advantage.

It is also of value as a diluent for cow's milk when used in the strength of four level tablespoonfuls to the quart (protein 1.4 per cent.) and this may be employed with condensed milk to advantage, greatly increasing the protein of the condensed milk mixtures. In many cases in practice condensed milk mixtures are of great service, but one serious drawback is the low protein content of the diluted milk. By the use of the soy-bean gruel this can, in a measure, be overcome. When this mixture is being used an occasional tablespoonful of orange juice should be administered as an antiscorbutic.

In cases of marasmus and in cases in which cow's milk mixtures are not well borne the soy-bean gruel may be added as a diluent of milk mixtures, and for backward, runabout children who are below *par* the addition to the dietary of soy broth or muffins may be tried.

The caloric requirements of the young infant are about 45.4 calories for each pound of body weight during the first three months of life; about 40.9 during the second three months, and about 36.4 calories to the pound during the second half of the year. The following table shows the approximate composition and caloric value of the gruels made from the soy-bean gruel flour. Each ounce contains about 13 grams protein and 120 calories.

Amount.	Protein. %	Fat. %	Sugar. %	Calories.
¼ oz. (1 level tablespoonful to quart)	.35	.15	.08	30
½ oz. (2 level tablespoonfuls to quart)	.70	.30	.15	60
¾ oz. (3 level tablespoonfuls to quart)	1.0	.45	.23	90
1 oz. (4 level tablespoonfuls to quart)	1.4	.60	.30	120
2 ozs. to quart	2.8	1.2	.60	240
3 ozs. to quart	4.2	1.8	.90	360
4 ozs. to quart	5.6	2.4	1.2	480
5 ozs. to quart	7.0	3.0	1.5	600
6 ozs. to quart	8.4	3.6	1.8	720
7 ozs. to quart	9.8	4.2	2.1	840
8 ozs. to quart	11.	4.8	2.4	960

If 6 level tablespoonfuls of the flour be used in making a quart of gruel, a satisfactory strength, 32 ounces would contain 19 grams of protein and 180 calories, being equal in protein to the same amount of average mother's milk, but containing about 400 calories less food value on account of the low fat and sugar content—a fact very important to remember in using soy-bean gruels. The caloric value of the gruel may be increased by adding condensed milk, sugar or cereals.

(1 oz.) 4 level tablespoonfuls of barley or wheat flour will add 100 calories.
(1 oz.) 4 level tablespoonfuls of oat flour will add 115 calories.
(1 oz.) 2 level tablespoonfuls of granulated sugar will add 100 calories.
(1 oz.) 3 level tablespoonfuls of milk sugar will add 100 calories.
Two ounces of sugar in a 32 oz. mixture = 6 per cent.

COOKING DIRECTIONS

Gruels.—A quart of gruel is made by boiling from 1 level tablespoonful to six ounces of the soy gruel flour in one quart of water for fifteen minutes, adding water to make up for loss by evaporation. Salt should be added to taste.

Composition.	Protein. %	Fat. %	Carbohydrates. %
One level tablespoonful to quart	.35	.15	.08
One oz. (4 tablespoonfuls to quart)	1.40	.60	.30

These gruels do not thicken during cooking as they contain no starch, and readily settle on standing. This may be overcome by adding 1 to 2 heaping teaspoonfuls of barley, oat or wheat gruel flour before cooking, which will add from 0.6 to 1.2 per cent. starch to the gruels, and also slightly increase the percentage of protein.

Broths.—Add from 1 to 8 ounces of the flour to one quart of beef, mutton, veal or chicken broth and boil for 15 minutes, adding water to make up for loss by evaporation; or, boil the same quantity of the soy flour for one-half hour with one quart of water, to which has been added a piece of ham, bacon or salt pork to give flavor. Each ounce of the flour will add to the broth about 13 grams of protein and 120 calories, or in percentages, add 1.4 per cent. protein, 0.60 per cent. fat and 0.30 per cent. carbohydrates. A broth made with 6 ounces of the soy flour to the quart would be half as rich in protein and fat as steak.

Muffins.—To make muffins from the soy flour, take 1¼ teacupfuls of the soy flour, ¼ teacupful of wheat flour, ½ teaspoonful of salt, 2 eggs, 1 teacupful of sweet milk, 2 rounded teaspoonfuls of baking powder, and 1½ tablespoonfuls of melted, but not hot butter. Beat well together, adding the melted butter last, and bake in gem pans in a hot oven. This will make about 12 muffins which will contain about 150 grams of protein and which will yield about 1,800 calories of which the carbohydrates produce but 280.

The soy flour, being non-nitrogenous, requires the addition of some wheat flour in making muffins, as above. The mixture of wheat and soy flours in this formula will contain about 36 per cent. protein and 20 per cent. carbohydrates, against 14 per cent. protein and from 60 to 70 per cent. carbohydrates in gluten flour. The proportion of protein to carbohydrates is from 8 to 10 times as large in the mixed soy and wheat flour as in gluten flour.

I am indebted to Mr. M. F. Deming for assistance in getting a satisfactory soy flour made.

839 North Eutaw Street.

HYPERTENSION AND THE VALUE OF THE VARIOUS METHODS FOR ITS REDUCTION

JOSEPH L. MILLER, M.D.
CHICAGO

Until comparatively recently high blood-pressure has been considered an indication for active therapy, rather than a compensatory process, demanding treatment of the underlying condition. Unfortunately our knowledge of the primary factors responsible for the condition are still far from complete. We know that certain anatomic changes, as the vascular varieties of nephritis, sclerosis of the celiac axis or its branches or of the aorta above the diaphragm lead to or are associated with hypertension. In addition, however, there are cases of hypertension in which careful anatomic studies have failed to reveal the cause and which for the present we must designate as idiopathic. Janeway[1] has called attention to the frequency of hypertension without urinary findings. The view that hypertension is a compensatory process has been suggested by many, especially by Krehl,[2] and merits the most careful consideration. Hypertension in nephritis may increase elimination through the impaired kidneys, by forcing more blood through the organ; or marked sclerosis of the arteries in other organs may lead to increased blood-pressure in the effort to supply it with the required amount of blood. Some work has already been done on the effect on elimination of lowering the blood-pressure in hypertension associated with nephritis. (Kinnicutt,[3] Rossbach,[4] Bourginski,[5] Loeb,[6]) but the results obtained have been far from uniform. Loeb in his recent careful experimental work, has shown that lowering the blood-pressure 35 to 45 points, by nitroglycerin, leads to diminished elimination of water and urinary solids.

My observations have been confined to the direct effect on systolic blood-pressure of sweating, venesection and the various vasodilators. In a majority of the cases tested the urinary findings were of such character that chronic interstitial nephritis could be diagnosed. In a few patients the urinary findings differed not at all from normal or so slightly that it is possible kidney involvement was absent; since anatomically cases of this character not infrequently show extensive interstitial changes, however, a nephritis could not be excluded; for this reason no attempt was made to classify etiologically the nature of the hypertension.

The Stanton sphygmomanometer with wide arm-band was used throughout.

Several readings were taken before submitting the patient to the test, as it was found that the first reading, in case the patient was somewhat frightened or unaccustomed to the slight pain caused by the compression, might be 10 or 15 points higher than later readings. Since toleration for the vasodilatation is comparatively easily acquired, care was taken to select patients who had not recently received medication of this character. As some samples of sodium nitrite and nitroglycerin are inert, the activity of the preparation employed was first determined by animal experiment.

NITROGLYCERIN

There is considerable difference of opinion in regard to the proper dosage of nitroglycerin. Some have given enormous doses without ill effect. Stewart[7] gave at a single dose 5 grains, von Noorden[8] 5½ grains, Hochaus[9] 7 grains, Himmelsbach[10] 21½ grains. On the other hand severe collapse has resulted from comparatively small doses, as 1/120 grain (Loeb). Initial large doses should never be given, 1/100 of a grain is the usual dose, and this amount was selected for our tests. When a fall in pressure did not occur with this amount, 1/50 of a grain was given, but without any more effect than from the smaller dose. The nitroglycerin was given in the form of 1 per cent. alcoholic solution, dropped on the tongue from a graduated minim pipette. Seven of the ten patients selected reacted to the nitroglycerin by a fall in blood-pressure varying from 20 to 50 mm. One patient gave a transitory drop of 15 mm. but within five minutes the pressure was within five points of the previous level. The two remaining patients failed completely to react, the pressure remaining unchanged.

TABLE 1.—EFFECT OF NITROGLYCERIN, 1/100 GRAIN, IN REDUCING BLOOD-PRESSURE

Patient.	Initial Blood-Pressure.	Time in Minutes: 2	4	6	8	10	12	15	18	21	25	30	35	40	50	60	90	120	150	180	210
J. M.	168	155	145	150	150	140	...	140	...	...	...	...	...	142	...	...	150	...	...	150	150
J. R.	210	205	210	205	...	...	195	205	205	...	205	...	205	...	...	...	...	...	...	...	...
G. V. W.	235	220	210	200	...	195	...	205*	...	210	215	...	...	...	215	...	220	...	...	220	...
A. B.	165	165	165	...	...	165	...	...	165	...	...	165	...	...	...	...	...	...	...	...	...
W. L.	230	215	205	205	...	...	220	...	225	...	...	...	225	...	...	...	...	...	...	...	...
S. B.	170	150	155	153	...	152	...	...	...	152	...	150	160	...	...	...	160	...	165	...	...
H. M. S.	185	185	160	125	130	130	...	135	140	150	151	155	165	175	...	...	180	...	...	...	...
C. J.	210	210	210	210	...	210	...	...	...	210	...	...	...	...	...	...	...	...	...	...	...
M. T.	180	145	...	130	...	...	135	...	142	145	...	150	...	165	...	165	170	175	...	...	...
W. S.	230	215	205	205	...	...	...	220*	220	...	230	...	...	...	...	...	...	...	...	...	...

* Headache.

The first evidence of fall in pressure appeared, in all but one case, within two minutes and with one exception the maximum fall in pressure was attained within ten minutes and in the majority of cases within six minutes. This maximum was maintained for a few minutes, the pressure rising gradually until within thirty-five to forty minutes it had risen to within about 10 points of the original level. After this the rise was so gradual that in one case after the lapse of three hours it still was slightly below the normal level.

As a result of the medication two of the patients complained of severe headache. These two patients were only moderately affected by the nitroglycerin, the headache appearing during the recovery from the maximum fall. Only one of these patients had suffered from headache as a consequence of his hypertension.

1. Janeway, T.: Pathologic Physiology of Chronic Arterial Hypertension and its Treatment, Am. Jour. Med. Sc., 1907, cxxxiii, 50.
2. Krehl, L.: Ueber die krankhafte Erhöhung des Arteriellen Druckes, Deutsch. Arch. f. klin. Med., 1905, xxi, 1872.
3. Kinnicutt, F.: Nitroglycerin in the Treatment of Chronic Nephritis, New York Med. Jour., 1886, xliii, 219.
4. Rossbach, M. J.: Wirkung die Herzhypertrophie und Blutdruckerhöhung der Nierenschrumpfung Compensirend bezüglich der Harnausscheidung, Berl. klin. Wchnschr., 1888, xxii, 83.
5. Bourginski: Lancet, London, 1885, ii, 733.
6. Loeb, A.: Klinische Untersuchungen über den Einfluss von Kreislaufsänderungen auf die Urinzusammensetzung, Deutsch. Arch. f. klin. Med., 1905, lxxxiii, 452.
7. Stewart, D.: Tolerance to Nitroglycerin, THE JOURNAL A. M. A., May 27, 1905, xliv, 1678.
8. Von Noorden, C.: Discussion on Arteriosclerosis, Cong. f. inn. Med., 1909, xxi, 152.
9. Hochaus: Discussion on Arteriosclerosis, Cong. f. inn. Med., 1904, xxi, 165.
10. Himmelsbach, G.: Large Doses of Nitroglycerin, Med. News, Philadelphia, 1893, lxii, 14.

In none of the patients, after the use of nitroglycerin, was there a rise in pressure, as has been reported by Loomis,[11] Hewlett,[12] and Dmitrenko[13] in man and by MacNidder[14] and Miller[15] and Matthews in dogs.

SODIUM NITRITE

Sodium nitrite, on account of its prolonged action, is considered by many more satisfactory than nitroglycerin. I employed it in solution in two-grain doses. Ten patients were studied; six reacted with a fall in pressure of 30 mm. or more; one 20 mm.; two 5 mm.; and one was unaffected.

The maximum drop was 75 mm.; in this instance the effect was transitory, as thirteen minutes later the pressure had risen to within 5 points of the original level. The first effect was observed as early as four minutes in one case; as a rule, however, not before six minutes. The maximum effect was obtained in from eight to fifteen minutes. The recovery to normal was more gradual than with nitroglycerin. Headache and other untoward symptoms were never observed.

Case 2, Table 3, is interesting, as the pressure continued to fall so that after the lapse of seven hours it was 70 mm. below the original level. The day following, the pressure fluctuated between 130 and 150 mm., although for several days previous to the test the pressure had been 200 mm. Following this the patient's pressure was taken daily; within forty-eight hours it reached 130 mm. and remained at this point during the two weeks the patient remained in the hospital. When the patient entered the hospital he was having uremic convulsions, the daily output of urine averaging 600 c.c. With the fall in pressure he became more comfortable, the convulsions disappeared and the urine averaged 1,700 c.c. daily. This case has been referred to in some detail for the purpose of calling attention to the rather decided and more or less permanent reduction in pressure that may take place in this class of patients. Another point of interest is the increased urinary output with the fall in pressure, although there was no special change in the fluids ingested, or in the loss through other channels. It is scarcely possible that the

TABLE 2.—EFFECT OF SODIUM NITRITE, TWO GRAINS, IN REDUCING BLOOD-PRESSURE

Patient.	Initial Blood-Pressure.	Time in Minutes																		
		2	4	6	8	10	12	15	18	21	25	30	35	40	50	60	90	120	150	180	210
C. J.	210	210	207	208	170	...	135	140	165	185	205	205	205	205	205	...	205	205	...	...	...
H. M. S.	185	185	185	185	...	...	180	...	...	...	180	...	...	...	...	185	...	...	...	...	205
O. R.	158	...	140	...	110	...	115	...	110	...	...	110	...	115	...	125	...	135	...	...	...
L. B.	170	165	...	...	140	...	150	...	185	...	...	150	...	...	...	155	...	160	...	...	...
L. L.	235	...	230	225	...	215	...	200	...	...	...	210	...	...	...	220	...	225	...	235	...
L. B	170	...	170	162	...	145	145	140	145	...	150	...	150	...	150	160	165	...	...	...	...
W. L.	230	230	230	...	225	...	215	210	220	220	...	...	...	...	...	215	...	...	...	225	...
T. P.	185	...	185	...	182	170	...	155	...	160	155	155	155	...	...	165	170	...	...	...	...
A. B.	160	160	...	160	155	...	155	...	...	155	...	155	155	155	...	...	...	...	...	...	...
R. G.	220	...	220	220	220	...	220	...	220	...	...	...	...	...	...	...	...	...	...	...	...

TABLE 3.—EFFECT OF ERYTHOL TETRANITRATE, ONE-HALF GRAIN, ON BLOOD-PRESSURE

Patient.	Initial Blood-Pressure.	Time in Minutes																		
		2	4	6	8	10	12	15	18	21	25	30	35	40	50	60	90	120	150	180	210
L. D.	195	195	195	...	190	190	190	...	...	190	...	...	...	190	...	...	...	...	...	...	...
G. W.	200	200	200	185	...	175	175	170	162	142	...	145*	160	150	142	145	150	150	150	150	150
C. J.	200	200	200	205	...	200	200	...	200	...	...	200	...	...	200	...	...	200	...	...	...
H. M. S.	175	...	158	155	90	65	70	65	75	90	115	120	120	...	...	135*	...	140	...	140	...
W. S.	235	235	235	...	235	220	...	...	220	220	...	...	220	...	...	225	...	225	...	225	...
G. V.	205	205	193	...	175	170	180	180	185	185	190	195	195	...	195	...	...	...	...	...	...
S. O.	195	190	195	195	...	190	...	185	...	180*	...	180	185	...	180	...	...	...	185	...	205
W. W.	175	175	152	150	145	140*	138	140	140	...	...	145	160	...	...	160	...	145	...	...	...
A. L.	205	...	190	...	170*	...	170	...	180	...	175	...	...	180	...	...	180	...	...	180	...
A. B.	165	...	...	160	...	160	...	160	...	...	160*	...	...	...	...	165	...	175	...	...	...

* Headache.

ERYTHROL TETRANITRATE

Ten patients each received a half grain tablet of erythrol tetranitrate; the tablet was chewed and then swallowed. Five reacted by a fall in pressure of 30 mm. or more; two 15 mm.; two 5 mm.; and one was unaffected. The maximum fall was 110 mm.; this patient going into collapse, recovery taking place within fifteen minutes. The first effect appeared usually within four minutes, the maximum was reached within ten minutes or somewhat earlier than with sodium nitrite. The duration of the maximum effect was more prolonged then with sodium nitrite and the return to normal much more gradual. Six patients after receiving the medicine complained of severe headache, which in one instance continued for twelve hours. The headache appeared as a rule during the period of recovery from the maximum drop, came on suddenly and was intense in character. One patient had marked headache without reduction in the blood-pressure.

single dose of erythrol had anything to do with the permanent fall in pressure, as I observed a somewhat similar behavior in a patient in whom the erythrol could not possibly have been responsible. This patient (No. 9, Table 3) reacted in the ordinary manner to the drug, the pressure the day following having returned to the previous level of 200 mm. The pressure was then taken daily without material change in its height for a week, then without any treatment except rest in bed the pressure underwent decided change so that without a period of three days it fell from 200 mm. to 110 mm., where it remained two weeks, the patient feeling very comfortable. Then without apparent cause and without any change in the treatment the pressure rapidly mounted up to 222 mm. The patient became restless and complained of headache and developed uremic symptoms. Vigorous daily sweats were begun and within 10 days the patient was much improved, the pressure meanwhile having fallen to 90 mm., and remained approximately at this point during the patient's stay in the hospital. It is questionable whether the sweats were responsible for the fall in pressure, or whether it was due to some undetermined cause. These two cases are of special interest as they are the only ones in my experience in which prolonged hypertension has been followed by normal pressure, and corresponding improvement on the part of the patient. It certainly shows how conservative

11. Loomis, H. P.: The Limitations of the Value of Nitroglycerin as a Therapeutic Agent, Med. Rec., New York, 1905, lxvii, 411.
12. Hewlett, A. W.: The Effect of Amyl Nitrite Inhalations on the Blood-Pressure in Man, Jour. Med. Research, 1906, xv, 383.
13. Dmitrenko, L. F.: Zur Pharmakodynamik des Nitroglyzerin, Ztschr. f. klin. Med., 1909, lxviii, 458.
14. MacNidder, W. B.: The Action of the Nitrites on the Heart, Am. Jour. Med. Sc., 1908, cxxxv, 99.
15. Miller, J. L.: Some Principles of Drug Treatment in Cardiovascular Conditions, THE JOURNAL A. M. A., Nov. 21, 1908, li, 1745.

we must be in drawing conclusion in regard to the effect of any special line of treatment.

COMPARATIVE EFFECT OF THE VASODILATORS WHEN TRIED ON THE SAME PATIENT

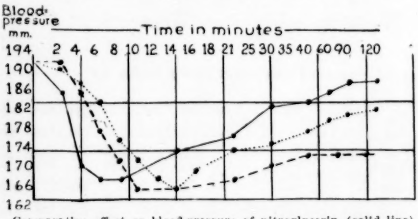
One patient, H. M. S. received on different days each of the three vasodilators. His pressure was not at all lowered by sodium nitrite, dropped 60 points after nitroglycerin and 110 points after erythrol.

Another patient, C. J., was not affected by nitroglycerin or erythrol but gave a drop of 65 points after sodium nitrite. A third patient, W. S., reacted by a drop of 30 points after nitroglycerin and 15 and 20 points respectively following erythrol and sodium nitrite. The patient who went into collapse after half a grain of erythrol was not affected by sodium nitrite.

The illustration shows the comparative action of the three drugs. This tracing was made by taking the average of each drug on the ten patients. This shows nitroglycerin most prompt in its action, erythrol second, sodium nitrite third. The degree of fall is strikingly similar in the three. Erythrol is most lasting in its effects as shown by the curve.

VENESECTION

The withdrawal of 300 c. c. or more of blood from the normal individual is followed by a transitory fall in blood-pressure. Butterman[16] bled ten students, withdrawing from 200 to 480 c. c. and nine had a fall in pressure varying from 5 to 30 mm. Patients with hypertension do not necessarily react in the same manner. The effect on blood-pressure is dependent largely on the rapidity with which the blood is withdrawn. The first patient in Table 4 was bled slowly 500 c. c. from an arm vein, the blood-pressure remaining unchanged. One week later the same amount was withdrawn rapidly, a fall of 15 points resulting.



Comparative effect on blood-pressure of nitroglycerin (solid line), erythrol tetranitrate (line composed of dashes) and sodium nitrite (dotted line).

TABLE 4.—EFFECT OF BLEEDING ON BLOOD-PRESSURE

Case.	Blood-Pressure Before Bleeding.	Amount of Blood Withdrawn. C.cm.	Blood-Pressure After Bleeding.	
1	200	500	200	
2	190	500	185	
3	160	600	150	Two hours later 160.
4	185	500	170	Two hours later 180.
5	220	450	210	

As shown by Table 4 the effect of bleeding on blood-pressure was very slight and transitory.

SWEATING

In determining the effect of sweating on blood-pressure only those cases are reported in which the patients sweat profusely for at least 30 minutes. The method of inducing the sweat varied, being either by hot wet blankets, by hot bricks, or by hot air. The blood-pressure was taken just before the sweat was discontinued. As shown by Table 5, three of the five patients reacted by a reduction in pressure ranging from 13 to 20 points; in one of these cases four hours elapsed before the previous level was regained. In every instance the patient felt much better after his sweat; this was especially noticeable in the patients with uremic dyspnea, their breathing being much improved, even in instances in which the blood-pressure was not reduced. The relief obtained is not to be explained by elimination of water or urea, as the amount of the latter in a profuse sweat rarely exceeds 15 grains. A redistribution of blood is probably an important factor, the splanchnics being relieved by the better filling of the cutaneous vessels. This is analogous to what takes place in the Nauheim bath, in which the calcium and sodium salts produce distinct hyperemia of the skin, which in patients with poststernal distress is followed by relief; and percussion shows a reduction in the cardiac dullness, although the blood-pressure may have remained unchanged. Of greater interest than the effect of a single sweat was the result of daily sweats.

TABLE 5.—EFFECT OF SWEATING ON BLOOD-PRESSURE

Case.	Blood-Pressure Before Sweating.	Blood-Pressure After Sweating.	
1	160	140	Four hours before it reached previous level.
2	190	190	
3	170	170	
4	190	175	Two hours before it reached previous level.
5	185	172	

A number of patients were given one or more sweats daily for a period of two weeks or more, the blood-pressure being carefully taken each day but not immediately after the sweat. Here as with the other measures the results varied, in some the pressure remaining unchanged, in others a gradual fall in pressure took place. One patient in particular, who had been under observation for several years, the pressure during this time never falling below 210 mm. received daily sweats for two weeks, during the first five days, there was the usual transitory reduction after each sweat. From this time on, however, the pressure became permanently lower, the last five days never rising above 180 mm. previous to the sweat, and falling to 160 mm. after the sweat. Other cases with similar results could be cited. Rather prolonged benefit has resulted from temporarily relieving the heart of some of its burden in this way. It might be argued that rest in bed was instrumental in bringing about the improvement. The patient just referred to on a previous occasion was placed in a hospital on account of poststernal oppression and mild attacks of pulmonary edema was confined to bed and given the same general treatment but without the sweats. After two weeks pressure was the same as on entering. This indicates that his fall in pressure was probably due to the sweats.

The sweats, however, like all other measures, are not lasting in their effect, as within a short time the pressure returned to the previous level. Several of the patients sweated were complaining of poststernal oppression. This was largely relieved by a few sweats. It has been my experience that poststernal oppression, so-called uremic dyspnea, and mild pulmonary edema are relieved more uniformly by sweats than by any other measure.

16. Butterman: Einige Beobachtungen über Blutdrucke bei Kranken, Deutsch. Arch. f. klin. Med., 1902, lxxiv, 1.
17. Carter, H. W.: Clinical Observations on Blood-Pressure, Am. Jour. Med. Sc., 1901, cxxii, 854.

Attention should be called to some of the dangers of sweating. One of these patients was sweated in an electric light cabinet, at a hospital where the attendant was accustomed to turn on the cold spray immediately after removal from the bath. When the cold spray was applied to my patient, he complained of great poststernal oppression and slight pulmonary edema. The day following it was requested that the blood-pressure be taken just before and then during the application of the cold spray, and it was shown that the application of the cold spray caused a rise in pressure of 60 mm. of mercury. Such measures are evidently decidedly dangerous. Another patient, who had a pressure of 220, for at least four years, shortly after being removed from the bath and while lying quietly on the cot in the hydrotherapeutic room suddenly developed left-sided numbness, transitory in character and continuing only a few hours. The pressure had been taken a few minutes before the attack and showed a reduction of 25 mm. The baths were continued with this patient, his pressure finally remaining around 190; he then developed repeated transitory hemiparesis with numbness. As the patient had been entirely free from attacks of this sort excepting for one rather marked hemiparesis five years previously, and as the attacks entirely disappeared after the sweats were discontinued, they probably were responsible for the disturbance. This can best be explained by assuming that the brain could be sufficiently supplied only through the narrowed vessels when very high pressure was maintained, lowering of the pressure causing cerebral ischemia with transitory hemiparesis. The same disturbances have also followed the use of vasodilators, indicating the necessity of careful further observation on this point and the possible danger of moderate reduction of hypertension.

Assuming that the lowering of high pressure is desirable, as it may be in certain cases, these and other observations have shown that it is attained with considerable difficulty. The vasodilators are all transitory in their action, and in some cases without any effect. Sweats and venesection are of value, especially the former. With the increasing tendency to assume that the hypertension is compensatory in character, the only rational method of treatment is to remove the cause; here we reach the borderline of our knowledge, and until better informed must consider increased elimination through skin and bowels and mental and physical quiet as the most satisfactory procedure.

CONCLUSIONS

1. In moderate doses active preparations of nitroglycerin and sodium nitrite temporarily reduce the blood-pressure in the majority of cases of hypertension.

2. Erythrol tetranitrate causes a more prolonged reduction in blood-pressure than nitroglycerin or sodium nitrite, but so frequently causes severe headache that its clinical value is much impaired.

3. Headache after any vasodilator does not mean that we are getting the physiologic effect in the sense that the blood-pressure is reduced, as the headache may appear independently of any change in pressure.

4. A patient's blood-pressure may be decidedly affected by one of these vasodilators and uninfluenced by another.

5. Occasionally the blood-pressure of patients with marked hypertension may show very marked fluctuations without apparent cause.

6. A single sweat reduces hypertension less than a moderate dose of vasodilators. If sweats are given daily, a rather marked reduction of pressure, lasting throughout the day, is observed not infrequently. When the sweats are discontinued the blood-pressure soon returns to its previous level.

I wish to express my thanks to the interns at Cook County and St. Luke's Hospitals for their interest and valuable assistance in these observations.

100 State Street.

DR. LYMAN SPALDING, THE FATHER OF UNITED STATES PHARMACOPEIA

J. M. EAGER, M.D.
Surgeon, U. S. Public Health and Marine-Hospital Service
PORTLAND, MAINE

In connection with the coming revision of the Pharmacopeia, a special interest attaches to the circumstances that led to the preparation of the first Pharmacopeia of the United States of America, and to the life and works of its originator and principal author, Dr. Lyman Spalding, who in January, 1817, at a meeting of the New York County Medical Society took the first decisive action toward uniting the medical societies and colleges of the different states for the purpose of devising a national pharmacopeia. That Dr. Spalding had long had the idea in mind is evinced by the fact that on May 21, 1808, he expressed before the New Hampshire Medical Society a dissatisfaction that there were so many separate pharmacopeias for different states. The regret was uttered in presenting as secretary of the society a copy of the Massachusetts Pharmacopeia which had been sent to him by Dr. John Warren, of Boston, a brother of Dr. Joseph Warren, killed at the battle of Bunker Hill. In the United States at that period and in the colonies previous to the union, the London and the Edinburgh pharmacopeias had been in use until certain of the states adopted special works on the subject. The importance of a legalized standard for substances used in medicine had always been evident from the standpoint of public health. So long ago as the year 1542, when the senate of Nuremberg sanctioned a work of the kind prepared by Valerius Cordus, the interest of governments in standardizing drugs was recognized. In England, May, 1618, a pharmacopeia issued by the College of Physicians was legalized as the London Pharmacopeia, and by the same act a separate charter was granted to the apothecaries for the sale of drugs and medicines, these substances having been previously handled by grocers as well as apothecaries. By the same law, the censors of the College of Physicians conjointly with the wardens of the apothecaries received authority to exercise supervision over apothecary shops so as to regulate the quality of drugs. It was by such an exercise of the law under intelligent control that, not only was the preparation of medicines of recognized value regulated in the interest of public health, but the banishment from apothecaries' shelves was ordained of many popularly cherished, substances of imaginary medicinal value such as calculi, crab's eyes, and moss from human skulls.

The Edinburgh Pharmacopeia was first issued in 1699 and the Dublin Pharmacopeia in 1807. These works together with the London Pharmacopeia were displaced in 1858 in Great Britain and Ireland by the British Pharmacopeia issued under authority of a provision in the Medical Act of the General Medical Council. Unfortunately, the efforts of Lyman Spalding in the

United States did not bring about a legal recognition of the Pharmacopeia by the Federal Government.

Many incidents in the life of the man who justly may be called the "Father of the United States Pharmacopeia" show that while his interest in professional work was broad extending to many branches of medicine he entertained from an early period of his career a special interest in chemistry and materia medica, leading naturally along the line of thought that culminated in the production of the work which has become a monument to his activity.

Lyman Spalding was born at Cornish, N. H., in 1775. His father was a farmer and a soldier of the colonial and the revolutionary wars. His general education was received at Charleston Academy, a few miles from Cornish. From 1787 to 1796, Dr. Nathan Smith, the distinguished physician and educator, was engaged in the practice of his profession at Cornish and was the family physician and preceptor of Lyman Spalding who studied in his office and accompanied him on his rounds visiting the sick. In 1795, Lyman Spalding went to Harvard Medical School from which he was graduated in 1797. Nathan Smith, also an alumnus of Harvard Medical School, traveled on horseback on one occasion from Cornish to Cambridge with Lyman Spalding. Another trip of the same sort Dr. Spalding made in the company of Philander Chase, afterward episcopal bishop of Ohio. After graduation, Dr. Spalding continued to assist Nathan Smith for three terms (1797, 1798 and 1799) in his lectures on chemistry and materia medica at the then newly established Dartmouth Medical School.

Dr. Spalding first settled for practice for four months at Walpole, N. H., in 1799. In June of that same year, an opening occurred at Portsmouth, N. H., where he remained until 1812. While at Portsmouth, he was favored with the use of the garden of Peter Coues, a sea captain who had once served on the famous battleship *Royal George*. Dr. Spalding was married in 1801 to Elizabeth, daughter of Captain Coues. An interest in materia medica led Dr. Spalding to plant poppy, lettuce and scutellaria. The opium and lactucarium he prepared were used in his own practice and the scutellaria was utilized in experiments for the cure of hydrophobia. William D. Peck, afterward professor of botany at Harvard, furnished the seeds from which the plants were grown.

In 1802, Dr. Spalding was appointed post surgeon at Fort Constitution, Portsmouth, which position he retained until 1812.

In 1809, Dr. Spalding went to Philadelphia and took a postgraduate course of four and a half months studying medicine under Benjamin Rush and under Dr. Barton, a professor of materia medica who was greatly interested in botany. He then went to New York, attended lectures for one month at the College of Physicians and Surgeons, returning to practice at Portsmouth in May, 1810. In October of that year he was invited to be professor of anatomy at the Fairfield Medical School, Fairfield, N. Y. This medical school originated from the Fairfield Academy started in 1803. Lectures on chemistry were begun in 1808 and medical lectures in 1810. Dr. Spalding was the first medical lecturer at the institution and, in 1812, when the school became incorporated as the College of Physicians and Surgeons of the Western Division of New York State, he was made president and professor of anatomy and surgery. As a preparation for teaching, and especially for teaching anatomy, Dr. Spalding had in 1807, previous to his visit to Philadelphia, acted as prosector, selected by Dr. Nathan Smith, to assist the well-known anatomist Dr. Alexander Ramsey in a course of lectures given at Dartmouth and lasting for several months. Dr. Spalding's work at Fairfield necessitated a trip on horseback every November from Portsmouth to Fairfield where he remained at the college for two or three months. At the time he was made president of the institution in 1812, there were from 50 to 65 students attending lectures there. During the winter of 1811-12, Dr. Spalding arranged to have Dr. George C. Shattuck, of Boston, his intimate friend, go with him to Fairfield as professor of medicine, but owing to the inconvenience of the long trips at an inclement season and the interference with his practice at Boston, Dr. Shattuck soon resigned the position though his friendly relations with Dr. Spalding continued as long as they both lived. Dr. Spalding's connection with Fairfield College continued until 1817 when, owing to political differences between the medical faculty and the college trustees, he resigned the presidency.

Before his disassociation from Fairfield College, Dr. Spalding went to New York in 1812 to enter practice being induced to settle in the metropolis because of the death of Dr. Edward Miller whose practice he hoped to obtain. Having made the acquaintance in 1797 of Dr. Samuel L. Mitchill, of New York, Dr. Spalding's introduction into New York medical circles was, through the kind offices of his friend, speedily and happily accomplished. Other papers of which he was the author having been favorably received by the New York County Medical Society, he decided in January, 1817, to broach his plan for a national pharmacopeia. The proposition was on the whole favorably received. Such opposition as was encountered the originator of the plan managed to overcome by surrounding himself with an efficient corps of collaborators, namely Thomas T. Hewson, Eli Ives, Elisha DeButts and Jacob Bigelow. He was himself chairman of the committee on publication of which the other gentlemen were members. In the formation of the committee on publication, Dr. Spalding journeyed one year from New York to Boston, a second year from New York to Philadelphia and a third from New York to Washington. In August, 1820, his son, L. D. Spalding, aged 10 years, carried the proof of the Pharmacopeia from New York, where his father was unavoidably detained, to Philadelphia delivering the papers into the hands of Dr. Hewson of the latter city. For his son's traveling expenses and board during the trip, Dr. Spalding charged the Pharmacopeial committee $13. The total cost of getting out the first Pharmacopeia, which ultimately appeared August 15, 1820, under the name of "The Pharmacopeia of the United States of America, 1820," was $2,235. The bill for printing was about $650. The book was announced as being issued by the authority of the medical societies and colleges. It was printed at Boston by Wells and Lilly for Charles Ewer, No. 51, Cornhill. The text was in English and also in Latin it being explained by the publication committee that the use of Latin not only in the nomenclature but in all the essential parts of the work was adopted owing to the belief the book was thus rendered more intelligible to foreigners, and more useful in those districts of the United States where the French and German languages were spoken.

Immediately on the completion of the Pharmacopeia, Dr. Spalding proposed before the New York Medical Society a revision of the code of ethics; but before he could carry this plan through he met, in the spring of 1821, with an accident which ultimately brought to an end the activities of a brilliant life. The injury from

which he suffered was caused by a box falling from a height on his head while he was walking on the street. Failing of relief under the care of his New York and Philadelphia colleagues, he went to Clarkston, near Tappan-on-the-Hudson, hoping to be benefited by the tranquility of a stay in the country. At that time, the body of the British Major André, buried in 1780, was disinterred. On exhumation of the body, Dr. Spalding called attention to the fact that the hair on André's head, which was shaved at the time of his execution, was of a considerable length. This phenomenon became the subject of a contribution made in 1906 to the *Chronique Medicale*, Paris, by Lyman Spalding's grandson, Dr. J. A. Spalding, of Portland, Me., to whom I am indebted for the main facts recorded in this brief biography, and in whose possession are many valuable and interesting documents relating to the first Pharmacopeia of the United States and the career of its talented originator.

Sept. 25, 1821, convinced that he had not long to live, Dr. Lyman Spalding sailed for Portsmouth where his relatives lived. Having made the journey by water, he arrived at his destination October 12. He died Oct. 30, 1821, and was buried in the North Burying Ground, Portsmouth, N. H.

INFECTIONS DUE TO THE BACILLUS AEROGENES CAPSULATUS

WITH A REPORT OF TEN CASES

JOHN BAPST BLAKE, M.D.
Visiting Surgeon, Boston City Hospital
AND
FRANK H. LAHEY, M.D.
Assistant Visiting Surgeon, Long Island Hospital
BOSTON

Many and varied were the conjectures in times past to explain the presence of gas in the tissues and hollow organs. By some it was thought to be the result of decomposition, and by others, atmospheric air, gaining entrance either through ulcers of the intestinal tract or lesions of the lungs. The former surmise, in a certain number of cases such as pneumaturia, etc., was probably true, but those cases in which the gas supposedly entered through an ulceration and manifested its presence in the tissues by emphysema, were without doubt cases of gas bacillus infection.

In gas bacillus infections also we probably find the explanation of many of the cases of air embolus written about by the very old writers, since it has been clearly established by Dr. Welch and others that gas, as the[1] result of post-mortem development of the *Bacillus aerogenes capsulatus*, frequently occurs in the vessels and heart cavities at autopsy.

HISTORY OF BACILLUS

The *Bacillus aerogenes capsulatus* was discovered by Dr. William Welch of Johns Hopkins and its description published in an article by Drs. Welch and Nuttall.[2]

It is usually the case that two investigators are at work at the same time, without cooperation, on any original observation. This was true in the discovery of B. A. C., and in 1893 Dr. E. Fraenkel published a description of the organism causing "gas phlegmon" which was identical with the organism discovered by Dr. Welch.[3]

In 1895, Goebel, ignorant of Dr. Welch's work, published a report on the bacillus of foamy organs.[4]

E. Fraenkel in 1893 first demonstrated the relation of B. A. C. to "gaseous phlegmon," the original work of Welch and Nuttall showing only its connection with gas in the blood. Later Dr. Welch repeated Fraenkel's experiments and confirmed his results.

Clinically, to Maisonneuve and Pirogoff is due the credit for the first descriptions of the disease. Maisonneuve, writing in 1853, called the disease *gangrène foudroyante*,[5] and Pirogoff, in 1864, acute gangrenous edema.[6]

Bottini[7] in 1871 first demonstrated the transmissibility of the disease and between that time and the discovery of its origin in 1891 there was much confusion, especially with the bacillus of malignant edema and Pasteur's *vibrion septique*. To-day in some of the text-books of surgery the description of B. A. C. and bacillus of malignant edema infections are confused. Even in some of the newer text-books B. A. C. is disposed of in a few lines which leave one with no clear idea as to its relation to other infections or the degree of danger associated with it. We cannot refrain from stating here that to really appreciate and understand how rapidly events may happen and with what fatal results in gas bacillus infections, one should see such a case as No II in our series.

Since Dr. Welch's first paper on the subject, except the discovery by Dunham in 1897 that the organism produces spores, little has been added to our knowledge of its bacteriology and practically nothing has been added to the clinical side or to our knowledge in the way of treatment. One of us (Lahey) has tried to limit the extension of the process in animals by the proximal injections of hydrogen peroxid but has done so only at the cost of the animal's life.[8]

The sites from which the B. A. C. have been recovered are many. In general way it might be said that the intestinal tract and the soil are the sources from which it is most consistently recovered. Dr. Hirshberg, working in the Johns Hopkins laboratory, recovered the organism from the intestinal tracts of rabbits, dogs and swine. In 1896, Dr. Walker at Johns Hopkins recovered it from dust collected in sweeping the floors, and at the same institution Dr. Harris recovered it from the contents of an old cesspool.

Dr. Welch reported in 1896 the bacillus recovered from a bullet in the head of the tibia, producing emphysematous gangrene, and E. Fraenkel reports the recovery of the organism from a splinter of wood in a case of tetanus.[9] One of us (Lahey) recovered it from the soil of the Boston City Hospital grounds, and in our series of cases it was recovered in a scalp wound resulting from a blow produced by the runner of a sleigh in midwinter on a snow-covered street. A case of B. A. C. infection following a lion's bite has also been reported.[10]

As Dr. Welch has stated, many cases have naturally been reported from Baltimore because of the interest in the subject there. As he also states, most of the writings are by Americans, and it is also of interest to note that practically all of these are by easterners. Few if any cases to our knowledge have been reported from any of the extreme western cities where traumatic lesions, in which soil infection would be likely, must be common.

1. In the following lines B. A. C. will be used for *Bacillus aerogenes capsulatus*. We have in places substituted gas bacillus as a shorter term.
2. Welch and Nuttall: Bull. Johns Hopkins Hosp., 1892, iii, 81.
3. Fraenkel, E.: Ueber Gasphlegmonen, Hamburg u. Leipzig, 1893.
4. Goebel: Ueber den Bacillus der Schaumorgane, Centralbl. Allg. Path. Anat., Jena, 1895, Part 5, p. 433.
5. Maisonneuve: Gaz. méd. de Paris, 1853, p. 592.
6. Pirogoff: Grundzüge der allgemeinen Kriegschirurgie, Leipzig, 1864, p. 867.
7. Bottini: Gior d. r. Acad. di. med. di Torino, 1871, x, 1121.
8. Lahey: Boston Med. and Surg. Jour., Dec. 16, 1909, p. 882.
9. Fraenkel, E.: München. med. Wchnschr., 1899, No. 42 and 43.
10. Jour. Med. Soc. New Jersey, 1905, i, 274.

NOMENCLATURE

Owing to the confusion attached to this disease, the names by which it has been styled are numerous. The following are some of them: traumatic gangrene; *gangrène foudroyante;* acute mephitic gangrene; phlegmonous emphysema; gaseous phlegmon; emphysematous gangrene; fulminating gangrene; *gangrène gaseux.*

B. A. C. infection seems to us the best term to apply to this disease, because it takes its origin from the cause of the disease which must remain constant.

The other terms, such as gangrenous emphysema and phlegmonous gangrene, are not as satisfactory, since they take their origin from symptoms which may be present individually from a wholly different cause.

BACTERIOLOGY

The organism is a non-motile, anaerobic, short, thick bacillus, having a capsule, as its name suggests. It resists the decolorization of the iodin in Gram's stain and grows on nearly all media in the absence of oxygen. The gas formed in its growth is said to be of the following composition: hydrogen, 64.3, CO_2, 27.6, nitrogen 8.1 parts; it burns with a pale blue flame.

The organism grows on culture media in the presence of oxygen, as has been demonstrated by one of us (Lahey) at least twenty-four hours.

CHARACTER OF THE INFECTION

The gas bacillus makes its presence known always by a definite picture, the intensity of which is influenced by the severity of the infection and its situation.

The temperature is elevated as the process develops, sometimes directly after the injury or operation, sometimes late, depending on whether the process be of the acute fulminating type or of the late, delayed type of infection. There is nothing characteristic in the pulse, being elevated as a rule in proportion to the temperature.

The first appearance of the process almost invariably is the watery, blood-tinged discharge, not pus. On close inspection may be seen small bubbles of gas coming from the wound, or very slight crepitation is felt beneath the skin at the edges of the wound. Large or small blebs varying in size from a quarter up to four or five inches in diameter may be the first evidence, causing one to be suspicious of B. A. C. infection. These blebs are covered by skin at first dark red and shading into blue or green in appearance, later becoming distinctly blue in color, and are characteristic in B. A. C. infections. Their contents are fluid, which has the characteristic foul, sweetish odor of B. A. C. infections.

If one be suspicious of gas bacillus and well-acquainted with its odor, it sometimes may be thus distinguished before any other evidence is at hand. A culture taken will show the presence of the organisms and we have then a very early diagnosis.

Pain in all of the cases has been almost entirely absent, although since there is much edema there must be considerable pressure on the nerves. This is probably explained by the fact that the toxins of B. A. C. which have such a necrosing action may interfere with the conductivity of the various nerves in the tissues surrounding the process. Delirium is usually a late symptom, appearing after the process has become generalized and being present until death.

Nausea, vomiting and the constitutional symptoms so characteristic of other infections are not usually present in B. A. C. infections until the process has become very extensive and as a rule beyond control. This seems explainable by the fact that the process extends mostly by direct extension and not through the lymphatics or blood channels. The lymph glands in pure infections are not enlarged and tender as in streptococcus and staphylococcus infections. There is no reddening and induration of the lymphatic channels and as a rule no development of fresh processes situated apart from the original infection. The process ascends a limb as a match burns with the lighted end held down, or, on the trunk, spreads out as a grass fire, extending between muscle planes, beneath peritoneum, along the path of least resistance, separating these layers by the distending action of the gas as it is formed.

Fascia, tendons and ligaments resist the infection strongly and as a rule are not affected by it. Muscle seems to be its most favorable site in which to flourish. At the original site of the wound we find the lacerated tissue soft, moist and of the consistency of pulp. Beyond this the tissues are pale and water-laden, containing small amounts of gas and apparently being prepared to assume the pulp-like consistency of the tissues at the original site of injury.

The foregoing description is that of an unmixed infection due to B. A. C. From this we may have the intermingling of the two processes—B. A. C. and staphylococcus or streptococcus infections—in any degree or proportion. The process may be a frank staphylococcus or streptococcus infection with occasional bubbles of gas and B. A. C. in small numbers, as in the lacerated wound of the scalp in this series, or may, starting as a simple ischio-rectal abscess, as has happened in the hands of one of our friends, begin to show itself as a B. A. C. process, rapidly changing from the predominance of the pus process to the complete overshadowing of it by the B. A. C. infection and resulting in death. In a case of this character the pus process remains local or practically so, with a tendency to recovery, while the B. A. C. process extends out into the tissues in the form of a practically unmixed process, which explains its severity.

In the cases in which the bacilli are limited to the wound, which contains a mixed process, it seems to us in cases we have seen much more amenable to treatment. But even in these cases the bacilli may remain locally present for some time, being active enough to produce gas, but not extending as is shown in Case 3.

TREATMENT

The treatment is always operative. Sometimes the operation will consist in the removal of stitches and allowing the wound to gape widely. Again it will require multiple incisions and sometimes we must resort to amputation. There are other things to do in the way of treatment but these are procedures which should be used as measures secondary or as adjuvants to the results obtained by one or more of the operative procedures. These secondary measures consist of frequent irrigations or spraying of the infected wound with hydrogen peroxid, the delivery of oxygen constantly into the wound from a catheter connected with an oxygen tank, or the submerging of an extremity in a constant soak.

First, to consider the indications for one or more of the operative measures. Concerning the opening of wounds widely there should be no doubt or hesitancy. In the presence of a fairly well-grounded suspicion the wound should be laid widely open and irrigated with hydrogen peroxid while a decision is made as to what more radical surgical treatment shall be instituted.

The other two methods, multiple incision or amputation, are not so easy to choose between.

Amputation must always offer the greatest chance of recovery, but also presents the disturbing thought that an extremity may have been sacrificed when multiple incisions might have accomplished the same result. On the trunk multiple incisions of course must be the only operation, no other being applicable.

In this series of ten cases four patients were treated by amputation, two died and two recovered. Two recovered under treatment with hydrogen peroxid, the wound being opened and treated locally; one recovered with oxygen delivered into the wound and one patient died with only local, non-oxidizing agents applied. In two cases treated by multiple incisions there was one death and one recovery.

Statistics as to operative results can be of little value since it is evident that the patients who recover under opening of the wound and secondary treatment with some form of oxygen would naturally be the mild cases, while amputation statistics would show many deaths, both because it is applied only in the extreme cases and because the operation itself, particularly when secondary to a compound fracture, etc., is of grave danger.

From this or from any other series of cases one cannot draw conclusions as to what is the best form of treatment in an individual case. In most cases it is safe to say that multiple incisions should be used only in the very early cases, and always with amputation in reserve if the former operation does not check the process. Amputation is practically always to be selected for the acute, rapidly extending process. While not always so, it is usually true that amputation must be done before the third day of the disease to be successful in saving life in a majority of the cases.

CASE REPORTS

CASE 1.—May 1, 1908, L., aged 27, single, a sailor; is said to have had arm run over by a freight car. Long lacerated wound on inner side of arm; elbow joint open; much laceration; radial artery pulsating. Wound cleaned, irrigated, loose fragments of humerus removed, drainage in front and back, sutured. Amputation refused by patient.

May 2, 1908: Dressing removed on account of bleeding, and wound packed.

May 4, 1908: Few bubbles of gas escaped from wound and crepitus beneath skin. Culture +.

Operation.—Arm amputated at junction of upper and middle third. Stump packed and left open.

June 1, 1908: Discharged, having had an uneventful recovery.

CASE 2.—March 30, 1907, K., aged, 51, was run over by freight car, causing traumatic amputation of left leg 4 inches above ankle, and right foot at mediotarsal joint. Both wounds full of dirt and grease. Chopart amputation on right and amputation at point of election on left.

April 1, 1907: Temperature has remained elevated, patient delirious; wound dressed; left leg shows typical sweetish, foul odor; bluish green discolorations over wound; blebs filled with bloody serum having very strong and characteristic odor; crepitus and gas bubbles from wound. Culture +. Patient removed to operating floor and reamputation at middle of thigh by transfixion. Following operation temperature fell to normal, but patient failed to recover from the shock of the second operation and died in two days. No organisms were recovered from wound and stump was apparently healing by first intention.

CASE 3.—March 20, 1906, L., aged 34, married, derrick fell on leg, causing compound fracture of tibia. Wound cleaned and put in plaster shortly after entrance; circulation of foot poor; moderate laceration of tissue.

March 21, 1906: Patient comfortable; circulation in foot still poor; plaster split.

March 22, 1906: Wound dressed; no evidence of sepsis, save bloody serous discharge of peculiar odor; afternoon temperature 103; pulse 130; bluish discoloration of entire leg; greenish area over upper part of tibia surrounding one of the wounds; gas escapes from wound on pressure; audible crackling sound of escaping gas on pressure. Culture +.

Operation.—Mid-thigh amputation. Subcutaneous tissues gangrenous.

March 24, 1906: Gas bubbles and positive cultures.

March 26, 1906: Few gas bubbles escape at each dressing on pressure.

March 30, 1906: Gas bubbles present up to to-day when, peculiarly, the temperature has reached normal.

April 19, 1906: Discharged. Convalescence uneventful up to this date.

CASE 4.—March 20, 1906, Mrs. W., aged 32, was admitted for gluteal abscess with deep fluctuation and suppurating abrasion. Incision and drainage; no free pus found but subcutaneous tissues apparently necrotic.

March 23, 1906: Wound dressed and edges found edematous and necrotic; gas escapes from edge of wound on pressure; culture +; patient delirious; former incision enlarged and again no free pus found.

March 25, 1906: Wicks have been changed; wound irrigated with hydrogen peroxid; no gas in tissues beyond wound, but general condition of patient failed, delirium came on and she died.

CASE 5.—Jan. 2, 1907, L., aged 52, stevedore, was struck by an electric car, knocked down, and sustained compound fracture at middle of left humerus. Cleaned, bones approximated and sutured.

Jan. 6, 1907: Wound dressed; large amount of bloody fluid (serum) evacuated. W. B. C. 17,400; temperature has remained 102 since operation.

Jan. 7, 1907: Dressed this forenoon; crepitus about wound and few gas bubbles from wound; wound widely opened and oxygen delivered into wound constantly. Culture +.

Jan. 10, 1907: Still slight crepitation and few bubbles; cultures ++.

Jan. 14, 1907: Uneventful recovery, except for a slight transient delirium.

CASE 6.—February 14, C., aged 27, single, teamster, was thrown from a pung on snow-covered street and dragged, runner striking head and causing long lacerated scalp wound. Wound full of hair and dirt. Wound cleaned and sutured loosely with rubber dam drain.

February 18: On the day following operation wound was dressed and a slight odor, sweetish and foul in character, detected. A few bubbles of gas came from wound. Smear from wound showed gas bacilli. Wound was laid open widely and irrigated frequently with hydrogen peroxid.

February 22: No gas from wound for past two days. Irrigations of hydrogen peroxid continued. Following this temperature came to normal and uneventful recovery ensued. Culture for gas bacillus negative on February 23.

CASE 7.—Aug. 5, 1906, L., male, aged 15, was struck by an automobile, causing crush of foot with large lacerations about ankle and lower leg. Wound cleaned, irrigated, curetted and sutured, with drainage.

Aug. 6, 1906: Dressed on day following operation (because of possibility of gas bacillus). Wound fairly clean; some discoloration of flaps distal to wound and similar discoloration between second and third toes; swelling somewhat increased.

August 7, 1906: Owing to foul, sweetish odor and discharge of bloody serum, multiple incisions were made about wound. Tissues were found to contain gas in small amounts and with but little extension. Culture +.

Following this, recovery uneventful.

CASE 8.—June 27, 1907, P., aged 56, painter, fell from staging (30 feet), sustaining fracture of lower end of radius and compound dislocation of ulnar. Large amount of dirt in joint. Extensive laceration of tissues. Wound enlarged, thoroughly cleaned and irrigated; rubber dam drain inserted and wound sutured loosely.

June 28, 1907: Plaster split; no odor; temperature 99.2 F. in forenoon; 101.8 in afternoon.

June 29, 1907: Foul, sweetish odor from wound; wound dressed; blue blebs, slight crepitation and gangrenous tissue found; removed to operating floor where multiple incisions were made. No gas was found but all of the tissues of the arm were pale and watery in appearance. Wounds were washed out with hydrogen peroxid.

June 30, 1907, patient died.

CASE 9.—April 24, 1907, Mrs. H., aged 51, fell from a balcony on the outside of the house and received a compound fracture of the femur, with dirt in wound. Wound cleaned and sutured with drain and plaster spica employed. String attached to drain for removal.

April 26, 1907: Drain removed by pulling on string.

April 27, 1907: Foul odor of gas bacillus, elevated temperature and delirium. Wound dressed; gas escapes from wound; crepitation on palpation; characteristic blue blebs; odor so strong that it could be smelled throughout the ward. Operation advised; mid-thigh amputation; patient died on table.

CASE 10.—X., a man, aged 66, was admitted to the Boston City Hospital for diabetic gangrene of the right foot; the condition had existed for five months and was complicated by a considerable sepsis; there was discoloration of the entire foot. At entrance, urine contained 3.5 per cent. of sugar and acetone bodies. Under a starch-free diet the urine became worse, but improved under a moderate diet. After two weeks mid-thigh amputation was recommended and accepted. It was done under spinal anesthesia, and was entirely free from post-operative shock. For sixty hours the convalescence was uneventful; then the temperature rose to 102 F., the wound being clean. Eighteen hours later there was a slight oozing of bloody fluid from the stump, and soon after this bubbles of gas were observed in the exudate, the stump becoming enormously swollen with extreme rapidity, discoloration and large blebs also developing rapidly. All sutures were removed and the wound left gaping, but the patient died within twelve hours from the time the gas bubbles were discovered.

A careful and thorough autopsy confirmed the findings made when the bubbles were discovered; the gas bacillus was found almost everywhere; the intestinal tract contained enormous numbers of them. The spinal canal did not show the slighest trace of irritation in any part. The precise route of contamination of the wound was not determined.

CONCLUSIONS

From the foregoing and other cases which we have seen, not here reported, it appears that in the majority of instances interference must be undertaken before the third day to make a favorable outcome probable. This is particularly true of the pure infections.

It is true, at least in this series of cases, that a lack of response to the infection in temperature is suggestive of a fatal result.

The grave danger of complete plaster-of-Paris dressing is only too well illustrated in Case 9. The dressing in all soil-infected wounds should not be an impervious covering and should be one which makes constant observation of the wound easy.

Laborers must be particularly liable to this infection, because they are exposed so often in the course of their occupation to soil-infected wounds.

While the disease is relatively common it is certain that in only a small percentage of soil-infected wounds do gas bacilli develop.

What is the explanation of this? It seems to us that the condition is similar to that in the rabbit, whose blood is well able to take care of large quantities of living gas bacilli, injected into the blood-stream; but in this same rabbit, if a leg be broken and then injections made into the blood stream, a B. A. C. process may be started at once around the fracture. The same conditions seems true in the human being, that normal human tissue is able to successfully resist the presence of a considerable quantity of gas bacilli. While this cannot be proved by injection into the blood-stream, as in the rabbit, its corollary is established by the fact that many of the lacerated wounds acquired by workmen in the streets and from soil elsewhere must contain gas bacilli (since it is prevalent in the soil, as we know), yet but a small percentage of them show gas bacillus infections. This suggests that the tissues when not badly injured can and do by their own vital resistance render harmless the B. A. C. present.

This is further evidenced by the recoveries following amputation, even when some gas bacilli remains in the stump. What happens in this case is that the manufacturing site or nest of gas bacilli, that is the badly lacerated tissue at the point of fracture or injury, which is the culture media, is removed by the amputation at one sweep, changing the fight from one in which all the odds are on the side of B. A. C. (Since new bacilli are constantly sent out in increasing number from the nest at the point of injury to take the place of dead ones) to a contest in which conditions are reversed. Healthy tissue, even though it contain the gas and numbers of the bacilli in their process of spreading, is well able to successfully resist them, as is shown by several reported cases and the cases in this series, in which the patients have recovered although gas remained in the stump after amputation.

Furthermore, it seems but reasonable to suppose that in the cases infected with B. A. C. the blood retains a destructive, or at least a resistant, action to their presence. At autopsy we find large amounts of gas in the vessels, sufficient to produce fatal results from air embolus if present during life. Yet in B. A. C. infections we find gas only in the part affected, the process being always a local one, extending by direct progression. If the bacilli find their way so rapidly into the vessels after death it is but reasonable to assume that the reason that they do not do so during life is that conditions there are unfavorable for them.

How long the gas bacilli may live in the circulating blood we cannot say. Their presence in the circulating blood without producing gas has been definitely demonstrated at Johns Hopkins Hospital.[11] It seemed probable to us that Case 10 was infected through the blood from his own intestinal tract, from which enormous numbers of B. A. C. were recovered. This seems not at all improbable, particularly since Dr. Brewer of New York has demonstrated the liability of the kidney to septic infarcts when rabbits are fed bacteria and when one of the kidneys is exposed and only such gentle injury inflicted as would result from the tapping of the organ with the handle of a knife; and more so when it is realized that B. A. C. develop more easily and rapidly in the presence of sugar, this patient, No. 10, being a diabetic.

In Case 4 it would seem probable from the situation of the lesion that the infection might well have come from the intestinal tract by direct contamination in the feces, which we know as a rule contain numbers of gas bacilli. Knowing of another rectal case not reported, an ischiorectal abscess which was opened and became infected with B. A. C., resulting in the patient's death, we advise that all ischiorectal abscesses be protected from feces as carefully as possible.

That B. A. C. infections do not take place more commonly in this condition seems strange but is explained, we believe, by the fact that the abscess cavities are usually left widely open and that they are lined with a layer of granulating and walling-off tissues as a result of the

11. Guyn, N. B.: Bull. Johns Hopkins Hosp., 1899, x, 134; Cole: Bull. Johns Hopkins Hosp., 1902, xiii, 234.

abscess, both conditions being unfavorable to the development of B. A. C.

In Case 3 it is interesting to note that temperature remained elevated as long as gas was present, although no other symptoms were apparent.

In the one case in which the process was mixed, Case 6, the infection was a mild one. This is in agreement with the majority of opinion that mixed infections are less severe than pure ones.

In these cases, five were compound fractures. The presence of soil in the wound was noted in six cases. The soil was that of a door-yard in two cases, from the dirt about a railroad in two, from street dirt in two, and probably in a third case. In one the injury was acquired on a street covered with snow.

Case 10 is interesting because of the existence of diabetes, as any medium is made more favorable for B. A. C. growth by the addition of sugar. Reasoning on this basis it would seem that diabetics should be more susceptible to the infection.

Plaster dressings were applied in three cases, two of which died. In both cases which died the process would have been discovered earlier had some other dressing than plaster been applied. If plaster dressings are applied they should be split, and in any injury in which B. A. C. would be likely to occur, that being any soiled and lacerated wound, the dressing should be thoroughly inspected for odor, watery discharge, emphysema, and particularly for bubbles of gas. This will mean inspection of the closest kind, for a small bubble of gas can easily escape the eye of one not on the lookout for B. A. C. infections.

To consider the B. A. C. infections as rare is a mistake. We have published in this article only unreported cases, but a much larger number of cases exists in the Boston City Hospital records. Many cases have been reported by other men and the condition certainly cannot be called uncommon. The complication must have occurred though unrecognized, or at least unpublished, in the practices of many general practitioners, particularly in the experience of those seeing many accident cases.

One should feel that the possibility of its occurrence is so definite that it should be guarded against. We are both of the opinion, from the cases we have seen, that it is liable to occur and will occur if given half a chance in a lacerated, soil-infected wound.

The best results are to be obtained, we believe, through prophylaxis, early diagnosis and prompt interference.

By prophylaxis we mean thorough cleansing of all lacerated or crushing wounds, careful cleansing and removal of dirt in soil-infected wounds, opening of the wound to the air as far as is feasible, instead of tight suture, even with drain, thus securing aerobic conditions which are unfavorable to B. A. C. The application of a dressing which allows the entrance of air to the wound as far as possible and dressings which may be easily removed for inspection of the wound, are also important. By early diagnosis is meant the careful watch for the signs before described, frequent cultures from the wound when in doubt and reopening of the wound where there is any question of gas bacillus infection.

By radical treatment we mean amputation in the fulminating type, with the stump left widely open; multiple incisions in the milder type, with careful and frequent inspection, so that amputation may be resorted to if the former treatment is not effective.

In regard to hydrogen peroxid and oxygen gas we can make no definite statement, but we do advise the use of the former in the stump after amputation and in the wound after the flaps have been opened.

We are of the opinion that B. A. C. infection is not a well-understood process in the minds of the average physician. We trust that we may have stimulated an interest that may result, should the infection occur in the experience of any hitherto unfamiliar with it, in its early discovery and successful treatment.

AN INQUIRY INTO THE CAUSATION OF NON-SPECIFIC URETHRITIS

JOSEPH HUME, M.D.
Lecturer and Clinical Instructor in Genito-Urinary and Venereal Diseases, Tulane University of Louisiana
NEW ORLEANS

Gonorrheal urethritis has held the attention of the medical profession so strongly from the earliest times that comparatively little interest has been taken in other forms of urethritis. I have endeavored in the following notes to classify certain of the non-specific urethritides, and to offer a hitherto unmentioned explanation of their origin, as well as that of certain forms of prostatic, vesicular, and vesical infections, the etiology of which have been more or less obscure. The material utilized as a basis for these observations has been obtained from 1,524 cases occurring in private practice.

I have rigidly excluded from the discussion all gonorrheal cases, all cases of chemical or mechanical irritation, urethritis ab ingestis, and all the rarer forms of urethritis attributed to general infective processes such as mumps and typhoid, or diathetic conditions like gout and rheumatism. It has also been necessary to exclude all cases of relapsing gonorrheal urethritis, and all cases of post-gonorrheal urethritis, i. e., discharges occurring in individuals who are gonococcus-free, but who may be subject to irregular attacks of subacute urethritis. Many rare and unique cases of urethritis reported by Guiard, Nogues, and others have failed to stand criticism because of a history of a previous gonorrhea, so that all such patients were excluded from this series. It is so common an occurrence to see the flare-up of a chronic post-gonorrheal urethritis without any apparent cause that it was deemed best to exclude such cases from the discussion.

I have in addition ruled out of consideration all cases in which there has been the slightest history or suspicion of gonorrhea unconfirmed by microscopic examination at the time; likewise all cases of patients who have been either injected, irrigated or instrumented. It was also thought advisable to exclude all cases of urethritis occurring in men over 40, owing to the possibility of an error in the history of the patient's earlier sexual experiences.

There remains for consideration a comparatively large class of patients who present themselves to the physician with a discharge following connection more or less definitely, or who accidentally notice a glueing of the meatus, or who complain of premature ejaculations or frequent night emissions. Again there are those who come to the physician with marked cases of prostatitis, vesiculitis, or cystitis, denying any and all probable antecedent cause, and in whom the examiner is unable to find gonococci, stone, stricture, etc., to account for the existing condition. It is this class of cases which I have thought deserving of a closer study with a view to a better understanding thereof.

It is exceedingly difficult to make a proper classification of the urethritides from the fact that any classification will differ according to whether the viewpoint be clinical, bacteriologic, or pathologic, but as it is important to have some working scheme, the one in the center of this page may suffice.

The etiology of the non-gonorrheal or non-specific groups is rather difficult to grasp at first, and it is only after a number of such cases have been seen and studied that the whole picture is clearly presented to the mind. The irregularity of the incubation period, the marked variation in inflammatory reaction, the changes in the urethra, and the varied microscopic picture of the discharges all tend to indicate differences too great to be explained by difference in virulence of organisms or suitability of soil. The fact is forced on one that there are two general types, at least, of non-specific urethritis; the one acute in character, following sexual congress after a regular incubation period, unattended by lesions indicative of chronicity, tending to run, like a true gonorrhea, a well-marked clinical course, and favorably influenced and easily cured by proper treatment; the other, chronic in nature from the start, sometimes noted after sexual congress, but with an incubation period markedly irregular—so much so that it cannot be said to have a true incubation period—presenting always urethral lesions which from their pathologic picture must have taken months or years to develop, and showing no tendency toward self-limitation, but characterized by resistance to treatment, and at times not amenable to cure. The former class I have termed cohabitative, sexual or infective urethritis; the latter auto-infective, or autogenous urethritis, both classes belonging to the non-specific group of urethritides.

ANTERIOR URETHRITIS

ACUTE				CHRONIC				
Gonorrheal.	Non-gonorrheal.		Aseptic.	Gonorrheal.	Post-gonorrheal.	Non-gonorrheal.		Aseptic.
	Cohabitative, sexual or infective.	Auto-infective, or autogenous.				Cohabitative, sexual or infective.	Auto-infective or autogenous.	

The acute forms of urethritis, non-gonorrheal in origin, are fairly infrequent, only 11 or 0.022 per cent., being encountered in 493 cases of urethritis of all types. The following case is quoted as being typical of this class.

CASE 1.—*Patient.*—Male, white, aged 27, single. Last connection five days before examination (Sept. 22, 1908); previous one three weeks before. This forenoon he noted a slight white discharge. No pain or burning on urination.

Examination.—Healthy male. Moderately long foreskin, worn back. Meatus showed slight puffiness and hyperemia. Moderate grayish-white discharge (pus-cells in numbers, few epithelial cells, large number of Gram-positive cocci closely resembling gonococci with plain stain). First glass, hazy with shreds. Second glass, clear and no shreds.

Treatment and Course of Disease.—Zinc sulphate, 2 grains to the ounce, alternating with silver nitrate, 1/12 per cent., and daily anterior irrigations with 1 to 4000 permanganate of potash.

September 23. Discharge less. First, clear with fine shreds; second, normal; 28 French sound in anterior urethra. No infiltrations.

October 6: Daily R. Bare mucoid discharge. First, clear, few shreds. Second, normal.

October 18: No discharge for five days. First and second normal. Prostate and vesicles normal to feel and to microscope. Treatment stopped

October 25: No discharge. Urine normal.

December 2: Regular life. No discharge. Urine normal.

Such cases have an incubation period rather similar to that of a gonorrhea, five to nine days, but in the non-specific case it is apt to be somewhat longer, as the infection is milder in character. In 11 cases the shortest period was four days, the longest twelve. These cases always show evidence of acute inflammation, as indicated by a reddened or puffy meatus, with a congested appearance of the urethral mucosa. The discharge is yellowish, but rarely frankly yellow, and only fairly profuse, seldom approaching the amount seen in gonorrhea. The discharge shows numbers of some organism usually alone, or else markedly predominant. The first glass of urine is more or less hazy with shreds, the second clear. An immediate urethral examination will not show any infiltrative changes. It must, however, be borne in mind that a urethral examination done at the close of such a case may possibly show fine infiltrations, whereas if done at the inception no infiltrations would be found. It is also to be remembered that such cases rapidly become chronic, and if first seen at such a time they may easily be misinterpreted. These cases are truly infective ones, they are acquired by direct contact during connection, and I will speak of them as cohabitative, sexual or infective.

The infecting organism was studied in 11 cases of this type. In 5 cases Gram-positive cocci alone were noted; in 5 cases bacilli alone were found, 4 Gram-positive, 1 Gram-negative; in 1 case both cocci and bacilli were found. The coccus is usually the *Staphylococcus albus;* the Gram-negative bacillus was the colon bacillus. The Gram-positive bacillus has not been recognized by name. It occurs as a diplobacillus, lanceolate shaped, with the rounded ends approximated.

It is unfortunate in this respect that more work has not been done to ascertain the pathogenicity of various organisms found in the female vagina. Gurd[1] has indeed recently investigated the flora of the female genital tract with great thoroughness, but no attempt was made to prove on anthropoids the pathogenicity of organisms found, which experiments, if looked into, might still further clear up this aspect of the subject, and prove of assistance in the future.

Closely analogous to such cases, on the surface, are those of patients who come into the physician's office purporting to have some acute urethral infection dating back to this or that connection. An examination shows little if any meatal puffiness or redness; the discharge, which is white and scanty, shows a variable and mixed bacterial character; the urine is clear with shreds or at the worst hazy with shreds, rarely definitely cloudy, as in true acute urethral inflammations. Such cases are often denominated "strain," or else attributed to masturbation, or to connection with an unclean woman, whatever that may mean. The patient is given some injection; in a few days the discharge has ceased, and the

1. Gurd: Jour. Med. Research, xviii, No. 2.

patient is considered cured, and the injection a cure-all. But if the examiner will make a careful urethral examination of such cases he will discover, in almost every instance, more or less marked infiltrations in the urethra, especially in the penile portion about the middle third. A urethroscopic examination will show the characteristic picture of a glandular or infiltrative urethritis. These facts being so, it must then be granted that this "new" case is not new at all, but merely a new observation on the part of the patient of an infective process which must have been already established for some time to produce such marked pathologic changes in the urethra itself.

It is interesting to glance at two lines of argument which support the view that such urethral conditions are very often unobserved until some particular suspicion or coincident effect calls the patient's attention to the slight discharge; first, the overwhelming proportion of such cases among medical students, who are notoriously given to a minute inspection of both subjective and objective phenomena; second, the statement of Waelsch[2] who refers to an intractable form of non-specific urethritis which he has found only in medical men. There is surely no reason why medical men should have a monopoly of a distinct urethral disease; it is, however, certain that they are apt to be better observers and more critical of their own bodies than the ordinary layman, so that what would pass as insignificant with the latter would not so easily escape the self-examination of the former. Out of 59 cases of urethritis in medical students in my series 14, or 23 per cent., were non-specific in nature, whereas out of 434 cases in private practice only 27, or 0.062 per cent, were non-specific. And of these 27, 9, or one-third, were in physicians. Roughly speaking, non-specific urethritis is discovered four times more frequently in medical men than in laymen, simply because of the mild disturbances it causes. Often this condition can be found in patients who are not suspicious of any urethral trouble, but who consult us for varicocele, circumcision, etc., and I have noted it in men who have never had sexual connection, or in others who have always used condoms.

The so-called incubation period of this type of urethritis is naturally vague and uncertain, and as stated in 30 cases was found to vary from one to thirty days. The meatus rarely presented signs of acute inflammation. The discharge is slight, grayish or white, with varied bacterial contents, never presenting large numbers of one organism either alone or decidedly predominant. The first glass of urine is usually clear, but shows fine floating shreds; the second glass is normal. And, to complete the picture, an immediate urethral examination will show more or less marked infiltrations. The prostate may likewise be involved, though presenting no symptoms. It is to be noted that though chronicity is the marked characteristic, yet these cases, with the necessary concomitant conditions, may show temporary "flare-ups." In addition, it is perfectly possible for a patient to acquire the first type described, acute non-specific urethritis, on a urethra already damaged in the manner outlined above.

What the origin is of this low-grade infection, and how it is brought about are natural questions that arose during a study of the cases. After many factors were looked into and cast aside, it appeared somewhat probable that perhaps a long foreskin with its necessary accompaniment of moisture and dirt might account for the condition. A glance at the following tabulation shows the condition of the foreskin in 30 of these cases.

Long foreskin	18
Medium foreskin	5
Short foreskin	2
Circumcised	1
Not noted	4

To ascertain the normal condition of the foreskin in childhood, as possibly bearing on the chronic forms described above, 91 successive male children were examined at the Touro Infirmary and Charity Hospital, through the kindness of Dr. King Logan. Their ages were from 2 months to 12 years. The following facts were noted.

Foreskin (91 Cases)

Phimosis	15
Long	69
Medium	1
None	6

Meatus (59 Cases)

Reddened	34
Normal	12
Not seen	4

Adhesions of Foreskin, 56; Discharge from meatus, 9.

Almost without exception the prepuce is long, often phimotic, adhesions are present, and there is about the meatus spreading peripherally over the glans penis an area of congestion, more or less red and of a width approximately dependent on the extent of the adhesions. When the adhesions are broken up this superficial congested area disappears rapidly as a rule. The statements of many pediatric specialists concur in the belief that a long foreskin with marked adhesions is the overwhelming rule in the male baby. I was unfortunately unable to find in the young male a definite case of marked urethral discharge, non-gonorrheal, but the conditions were not favorable in that most of the children had just urinated recently, thereby preventing any accumulation of discharge. I found, however, several cases, 9 in number, in which there was slight urethral moisture containing epithelial cells, few pus cells and bacteria; indeed, it cannot be hoped to find a definite non-specific urethritis except once in many hundred cases. In this connection it should be borne in mind that an adult may show a medium foreskin which when he was a child would have been a long one.

This condition of a long foreskin encourages heat, moisture, and uncleanliness around the meatus, all favorable factors for germ development. Jungano[3] recently, and many others before him have shown how many organisms are habitually present about the meatal lips and the glans penis, in addition to those in the normal urethra; with such factors tending to encourage germ development and urethral congestion it is quite possible and highly probable that many urethras are not able to withstand bacterial invasion and become permanently infected with organisms of low pathogenicity. Likewise it is not unlikely that some of the obscure joint lesions and kidney infections of childhood may owe their origin to such a source. A consideration of these facts makes it rather probable that in the young male all the conditions are present which allow a local infection to start; that in some cases it does so start, is unnoted, and becomes extremely chronic and slowly produces changes in the urethral mucosa, submucosa and glands. Later on after puberty, following intercourse and the attendant alcoholic irritation, the passage of very acid urine, etc., the mind becomes suspicious, attention is centered on the penis, a slight discharge is found, and the patient presents himself to the physician for an examination.

2. Waelsch, L.: General Syphilis without Primary Manifestation and Professional Syphilis in Medical Men, München. med. Wchnschr., April 27, 1909; abstr. in THE JOURNAL A. M. A., June 5, 1909, liii, 1895.

3. Jungano: La flore de l'appareil urinaire normale et pathologique, Paris, 1908.

A careful examination of such a patient discloses the condition described above, for which I have tentatively suggested the term auto-infective or autogenous urethretis, by which is meant the type which invariably develops spontaneously in one's self, in contradistinction to that variety which follows intercourse, therefore designated cohabitative, sexual or infective urethritis. This form is much more common than the sexual variety, being noted 30 times, or 0.063 per cent., in 493 cases of urethritis; it is about three times as frequently met as the sexual or infective type. A striking fact is that I have never yet noted its occurrence among Jews, who are without foreskin practically from birth.

To illustrate this condition more fully the following case is quoted as typical of this type of urethritis:

CASE 2.—*Patient.*—White, male, aged 20, single; denied all previous venereal diseases. Discharge noted morning of day of examination (April 24, 1908); some burning on urination noted day before. Last connection eight days before examination; previous one four weeks before.

Examination.—Healthy male; long foreskin; meatus medium red, perhaps a little puffy. Slight watery, grayish discharge, showing pus, epithelial cells, few cocci and diplobacilli. First urine, clear with few fine shreds; second, normal.

Treatment and Course of Disease.—Anterior irrigation with 1 to 4000 potassium permanganate.

April 25: Barest moisture (pus and epithelium, very few cocci and bacilli). First, clear, with few fine shreds; second, normal. Treatment, anterior irrigation with 1 to 4000 potassium permanganate.

April 26: No moisture; first, clear, with 2 to 4 shreds; second, normal; 23 French sound showed very numerous and marked infiltrations, especially in the first three inches of the urethral canal.

June 2: Patient said that he was well and discontinued treatment. Urine normal, both glasses.

The question as to whether the organisms of the auto-infective or autogenous type of urethritis are infective for other urethræ is interesting, and I have found one case which is very suggestive. Two young men, never before infected, A and B, had connection with the same woman on the same night, A two hours before B. B came into my office a few days later, October 8, 1908, with a fairly profuse yellowish discharge, showing a Gram-positive diplobacillus, lanceolate-shaped, in great numbers. The first urine was hazy, with shreds, the second, normal. His urethra and prostate were normal, and the case ran the typical course of an anterior urethritis, being cured in fifty days. He told me of A, and I advised him to tell A to watch out for signs of infection. A came to me eleven days after B's first visit, October 19, 1908. For two days he had noted a slight smarting on urination. He presented a long foreskin, and a medium red meatus, with a slight white discharge containing epithelial and pus cells, and large numbers of lanceolate-shaped, Gram-positive diplobacilli, with various other urethral bacteria. These diplobacilli were similar to those found in B's case. The first urine was slightly hazy, with numerous shreds, the second normal, prostate normal. Three days later his urethra was examined, and marked anterior infiltrations found. The patient was treated for three months and a half before he was cured. A stated that he would never have thought of any trouble unless he had been cautioned by B.

The prognosis of the cohabitative or sexual form of urethritis is good, and as a rule the patients are easily cured. Many of the so-called gonorrheas which are cured by a few injections are unquestionably unrecognized cases of this type. The prostate may occasionally become involved, but other complications are rare; I have, however, seen epididymitis occur.

The most effective treatment for this type consists of injections of silver nitrate, 1/12 per cent. to 1/8 per cent., increasing in strength as the inflammatory process declines, combined with daily irrigations of potassium permanganate in ascending strengths. The proteid silver salts are good, but I prefer to use the nitrate as giving better results. As the case progresses toward a cure an astringent injection is alternated with the silver, until the latter is finally discarded. The duration of treatment varies from three to four weeks, the longest time being about three and a half months in cases in which the prostate is involved. There are some forms, however, due to an infection with a slender bacillus, which appear to be more amenable to the action of the zinc salts, perhaps comparable to the results of zinc in conjunctivitis due to the Morax-Axenfeld diplobacillus.

On the other hand, the prognosis of the auto-infective or autogenous form of urethritis is not so favorable. The infective process has been going on for many months or years, inflammatory changes have become well marked, and there is often a well-developed fibrosis in localized areas of the urethra. In addition, the prostate is often infected, and it may, and usually does take months to effect a cure; in fact, in many of these cases it is impossible to restore the mucosa and submocosa to a normal state. Too often a slight urethral moisture remains, or else recurs several months after treatment has been stopped, and prolonged observation of such patients for several years has led me to believe that few if any are positively cured, a slight discharge containing pus cells being present if the urine is held for six or eight hours.

This type of cases is best treated along the following lines; circumcision; massage of the prostate, followed by intravesical irrigations and hot rectal douches, if the prostate be involved, as shown by the presence of pus in the prostatic secretion rather than by digital examination of the gland; dilatation of the urethra in combination with urethral irrigation; injections. Of the latter silver nitrate in strengths of 0.25 per cent. to 0.5 per cent. offers the most hope in the severe cases; it should be kept up for one or two weeks, then giving place to a course of urethral dilatation. It is advisable to give a long course of treatment subdivided into short periods with an interval of rest in between. Time is an essential element in the treatment to enable the infiltrations to soften and be absorbed. Ointments applied locally to the urethra would apparently be useful, but I have not found them very efficacious; in sluggish cases, however, it is well to try ichthyol or balsam of Peru, in full strength or with equal parts of lanolin.

I would again insist on the fact that many such patients may be apparently cured; they may have normal prostate, normal urine, no discharge, and a urethra without perceptible infiltrations; yet if observed for six to eighteen months they will almost always show a slight discharge, a few shreds in the urine, and infiltrations of the urethra now again perceptible, indicative of the fact that the infecting agent has not been entirely eradicated. Again, there are other cases, belonging to the same general class, in which even a temporary cure cannot be effected, a slight discharge and marked infiltrations persisting in spite of all treatment. I have kept such patients under treatment and observation for two years and more, until I was convinced that with our present methods a cure was impossible.

In many cases belonging to this class the patients are made neurasthenic, and spend many hopeless years be-

V 19

cause this fact is not known. With experience it does not take long to ascertain the possible limit of improvement of each case; when this point is reached the patient should be told the truth as to the condition, and he should be advised to discontinue the treatment, but to report at intervals for an examination.

I have purposely avoided any discussion of the aseptic type of urethritis; there is no doubt of its existence; it is always associated with infiltrative lesions of the urethra, and is probably dependent on deep glandular infections. It is most probable that when more work has been done on the anaerobic flora of the urethra we shall have a much better understanding of this class of cases.

It is highly probable that the urethral condition which is brought about by the form of auto-infective or autogenous urethritis will readily account for the variability which so many cases of gonorrhea show. Considering first cases of gonorrhea only, and for the sake of clearness those limited to the anterior urethra, it is well known how many differences they show in their clinical course; some heal kindly, and complete resolution follows; others tail off in a most exasperating chronicity, though gonococcus-free; others flare up with acute exacerbations time and again. If, however, one comes to realize that these first anterior gonorrheas occur, some on a virgin soil, others on a field already damaged by less virulent but none the less persistent organisms, it will soon be clear that the virulence and chronicity of the gonorrhea may well be determined by the presence or absence of pre-existing inflammatory changes in the urethra. I have therefore come to the belief that the variation from the normal which must exist in many urethras accounts for the chronicity and tediousness of many a first gonorrhea.

There are certain cases of prostatitis and vesiculitis which occur in patients who give no history of venereal infection, or of instrumentation, or of any other source of contamination. Such an infection must be explained, as some do, as a result of normal masturbation, or as a descending infection which unaccountably fastens on the prostate alone, leaving the rest of the genito-urinary tract untouched, or as a direct infection from the rectum or blood-stream, or, finally, on the assumption of a low-grade ascending infection, which, giving little discomfort to the patient, was unnoted or passed over by him at the time. I firmly believe, as a result of clinical observations, that many such cases follow some antecedent urethral infection, which becomes extremely chronic, dies down or out, but not until after it has infected the sexual glands. It is certainly common enough in gonorrhea to see an infected prostate with normal urine and no symptoms of trouble. It is pretty certain that some cases of cystitis in women are brought about by a direct ascending infection from the vagina. I have noted involvement of the prostate in 6 out of 11 patients who presented themselves for circumcision or varicocele with no urinary symptoms whatsoever; in these cases the urine was clear, symptoms were entirely absent, and the condition was found only by routine examination of the urinary tract as a prelude to treatment. This form of infection must be taken into account in considering the etiology of senile hypertrophy of the prostate.

The following cases are quoted in detail because of their instructive features in this connection:

CASE 3.—*Patient.*—Male, white, aged 24, single; never had stayed with a woman in his life. In the summer of 1904 he had an attack of malaria, and at that time noted burning on urination and a thick white discharge. Shortly after this he was laid up with a slight epididymitis. He had had no

TABLE 1.—COHABITATIVE AND AUTO-INFECTIVE TYPES CONTRASTED: 4 CASES EACH

Age.	Foreskin.	Meatus.	Incubation.	Discharge.	Bacteria.	Urine. 1st glass.	Urine. 2nd glass.	Urethra.	Prostate and Vesicles.	Treatment.	Duration of Treatment.	Result.	Remarks.
COHABITATIVE, SEXUAL OR INFECTIVE													
21	Medium.....	Puffy and hypremic.	5 or 21 days.	Medium yellowish.	G. P. cocci.....	Hazy with shreds.	Normal.	Normal.....	Normal.....	Injections and irrigations.	26 days.....	Cured.....	Circumcised 6 years ago. Few fine infiltrations noted at end of case.
19	None.....	Pink and puffy.	4 days..	Medium yellowish.	G. P. diplobacillus.	Hazy with shreds.	Normal.	Few fine infiltrations.	Normal.....	Injections and irrigations.	50 days.....	Cured.....	One year later. No discharge; 1" and 2" glasses normal.
19	Short.....	Congested...	7 days..	Medium, white, watery.	G. P. cocci....	Hazy with shreds.	Normal.	Normal.....	Prostate badly involved, much pus.	Massage, injections and irrigations.	2½ months.	Cured.....	
22	Not noted..	Pink and puffy.	12 days.	White.....	G. P. cocci....	Cloudy with shreds.	Normal.	Not noted....	Normal.....	Injections and irrigations.	23 days.....	Cured.....	*Staphylococcus albus* in pure culture. All connections for past 4 months with same woman.
AUTO-INFECTIVE OR AUTOGENOUS													
25	Very long..	Reddened....	.....	Mucoid.....	Bacilli and cocci.	Clear; few shreds.	Normal.	Marked infiltrations.	Normal.....	Dilatations and irrigations.	8 weeks.....	Cured.....	Never with a woman in his life.
20	Long.....	Slight pinkness.	8 days..	Watery, yellowish.	Diplo-bacilli and cocci.	Clear, with shreds.	Normal.	Marked infiltrations.	Not noted....	Dilatations and irrigations.	4 days.....	Cured?....	Discharge ceased — certainly not cured.
22	Very long..	Puffy, not red.	2 or 9 days.	Watery, white..	Rare cocci....	Hazy with shreds.	Normal.	Marked infiltrations.	Not noted....	.....	.....	.....	Not treated.
19	Long.....	Normal.	3 or 17 days.	Scant, white....	G. P. cocci, diplococci and bacilli.	Clear, with shreds.	Normal.	Marked infiltrations.	Normal.....	Injections, irrigations and dilations.	3½months.	Cured.....	Examined 2 years later; 1" and 2" glasses normal.

treatment except internal medication. At the time of examination (March 13, 1905) the discharge and burning continued; he urinated every two hours in the day and twice at night. Erections were good and night emissions frequent.

Examination.—This showed a long adherent foreskin, chronic balano-posthitis, and masses of smegma could be squeezed out of pockets in the preputial cavity. The meatus was red and contained a thick grayish-white discharge showing pus, cocci and bacilli. The right globus minor was somewhat thickened and hard. First, second, and third glasses were cloudy (pus) with shreds. Prostate was a little enlarged, increased in density, and tender; right vesicle thickened, left normal. Secretion from prostate and vesicle was dirty white, showing under the microscope all pus with cocci.

Treatment and Course of Disease.—Patient was circumcised, many adhesions being broken up. He was treated for five months and discharged cured. He was reexamined in June, 1908, three years later; no discharge; meatus normal. Urine, both glasses normal. Prostate and vesicles normal to feel; secretion white, containing spermatozoa, lecithin, granule cells, with rare leucocytes.

January, 1910: No trouble. No discharge. First and second glasses normal.

CASE 4.—*Patient.*—Male, white, aged 26, single; never had stayed with a woman in his life. He complained of frequent night emissions, two or three per month. He had worried about them only lately, and then only because he did not understand them.

Examination.—This showed a very long foreskin, a congested, purplish area about the meatus with some redness of the urethral mucous membrane; slight watery discharge showing epithelium, pus, few cocci and bacilli. First urine had mucoid haze with shreds; second clear. Prostate showed involvement to feel and on examination of secretion by microscope; 20 French sound showed very dense, large, well-marked infiltrations in penile urethra.

The patient was treated and cured.

A thorough study and understanding of the above facts will lead one to a more definite comprehension of the etiology and pathology of non-specific urethritis, and will point the way to a more exact knowledge of the causation and development of certain obscure cases of genitourinary infections; at the same time it will enable one to explain logically the exceeding variability in the reaction of certain urethrae to gonorrheal invasion.

In Table 2, 41 cases are tabluated as regards special points to which attention should be called:

TABLE 2.—SPECIAL POINTS IN 41 CASES

COHABITATIVE OR SEXUAL (11 Cases)		AUTO-INFECTIVE OR AUTOGENOUS (30 Cases)	
Foreskin		*Foreskin*	
Long	4	Long	18
Medium	1	Medium	5
Short	2	Short	2
Circumcised	1	Circumcised	1
Not noted	3	Not noted	4
Urethral Infiltrations		*Urethral Infiltrations*	
Marked	0	Marked	14
Fine	3	Fine	10
None	2	None	0
Not noted	6	Not noted	6
Prostate		*Prostate*	
Involved	2	Involved	10
Normal	6	Normal	14
Not noted	3	Not noted	6
Bacteriology		*Bacteriology*	
Bacilli and Cocci:		Bacilli and Cocci:	
Scarce	0	Scarce	7
Numerous	1	Numerous	2
Numbers not noted	0	Numbers not noted	10
Bacilli (numerous):			
Gram-Pos.	4	Bacilli (numerous)	1
Gram-Neg.	1		
Cocci:		Cocci:	
Numerous	5	Numerous	2
Numbers not noted (All Gram-Pos.)	0	Numbers not noted	5
Grouped Cases		*Total Urethritis*	
Private practice	1,400	Private practice	434
Medical students	124	Medical students	59
Total	1,524	Total	493

Non-Specific Urethritis

Private cases	27	(.063 per cent.)
Medical students	14	(.23 per cent.)
Total	41	(.083 per cent.)
(a) Sexual or Infective.		
Private cases	7	
Medical students	4	
Total	11	(.022 per cent.)
(b) Auto-infective or Autogenous.		
Private cases	20	
Medical students	10	
Total	30	(.06 per cent.)

CONCLUSIONS

In closing I feel warranted in offering the following conclusions:

1. Non-specific urethritis, acute and chronic, is a definite clinical entity.

2. Many of the non-specific cases of urethritis are not of a sexual origin.

3. A long foreskin may be the possible starting-point of those types of non-specific urethritis not due to connection, because it produces urethral congestion in early life, and favors moisture and germ growth.

4. The variation and chronicity of many cases of gonorrhea are due to pre-existing urethral changes of a non-specific character.

5. The existence of chronic non-specific urethritis offers a feasible explanation of the origin of many cases of obscure prostatic or vesicular infection.

6. The practice of circumcision should be encouraged as a means of preventing autogenous urethral infection.

724 Baronne Street.

V 19

ANIMAL EXPERIMENTATION IN RELATION TO PRACTICAL MEDICAL KNOWLEDGE OF THE CIRCULATION*

JOSEPH ERLANGER, M.D.
MADISON, WIS.

IN THREE PARTS

INTRODUCTION

There are but two paths along which the advance of medical science and art can be pressed; they are observation and experiment. The two lead to the same goal; both are beset with difficulties or even with obstacles which for the time being are, or may even forever be, insurmountable. In any case it is essential, in order to ascertain beyond peradventure that either of the paths has led us to our goal, to show that the two lead to the same place. Still, to have threaded one of the paths successfully usually assures an easy and early approach by way of the other. Indeed, the opening up of one path often leaves the finding of the other merely the matter of a single trial. When this is the case we are apt to lose sight of the fact that actually the goal has been reached by an advance pressed along both pathways.

The bearing of these remarks on the subject-matter of this paper becomes obvious when it is recalled that as subjects of observation and experiment the medical investigator employs both man and the lower animals. The method of pure observation may be employed in the study of both, whereas man can be employed as the sub-

* This paper is one of the series prepared for and reprinted by the Council on Defense of Medical Research of the American Medical Association for circulation among the public. Fourteen of these pamphlets are now ready, taking up the relations of animal experimentation to ethics, diagnosis, cancer, vaccination, the live stock industry, tuberculosis, typhoid, dysentery, plague, rabies, surgery, internal secretions, the circulation of the blood, protozoan tropical diseases, etc.

ject of an experiment only with his full knowledge and consent and in such a way as to inflict neither bodily discomfort nor pain, except the not infrequent instances in which the experimenter himself serves as subject of the experiment. But experiments of the kind that can be made by the experimenter on himself are, for obvious reasons, limited in number. There remains, then, a whole host of experiments that must be performed on the lower animals, if medical knowledge is to be advanced. This statement is true, it matters not what view we may hold as to the justifiability of experiments on animals; it is nevertheless called into question by certain misinformed or misguided persons who argue that experiments with the lower animals cannot serve to throw any light on the functions, either normal or abnormal, of the organs of man. This objection, though untenable as it stands, contains an element of truth. It is true that inferences, based on animal experiments, as to the functions of the organs of man must be carefully guarded. When, however, they are checked by critical observation of, and painless experiment on, man, inferences from animal experiments have, we believe, led us to the greater part of our practical medical knowledge and the part which is considered the most valuable.

Scientists, then, are all agreed that the findings of the laboratory must be in full accord with the matured conclusions of bedside observation if they are to be entitled to enrolment in the category of established medical truth. Furthermore, it is equally true that bedside observation can lead to the truth only when it is checked by experiment, which in this case may, however, be made for us by the slow and precarious methods employed by Nature. It is just at this point that it becomes difficult to determine what part of medical advance along any line is due to the achievements of the animal experimenter and what part to keen observation, at the bedside, of experiments performed by disease and trauma. However this may be, all who are in a position to know are of the opinion that they are mutually helpful.

Indeed, they are mutually helpful in more ways than one. A very large part of the best clinical observation has been, and is being, made by clinicians who have had the opportunity of witnessing and performing animal experiments during their student days, or who have actually been engaged in research involving animal experimentation. The fruit of clinical observation naturally depends very largely on the attitude of mind which the clinician brings to bear on his cases. Our system of medical training recognizes this fact in requiring that the student be given every opportunity in the laboratory to develop the critical way of contemplating things that must be employed when interrogating Nature.

It is not merely a coincidence that the periods of most rapid medical progress (Hippocratic, Alexandrian, Galenic and modern) have also been the periods of greatest activity in the pursuit of animal experimentation or its equivalent. Furthermore, it has not been merely a matter of chance that in each of these periods the most highly esteemed men (Hippocrates, Erasistratus, Galen, Harvey) were at one and the same time practitioners of medicine and animal experimenters, actually or in effect; and that at least two of them (Hippocrates and Galen) were the greatest clinicians of their times as well as the authorities of clinicians for centuries after them.

They were the authorities not alone in the particular fields in which they had conducted animal experiments, but, as a matter of fact, in every field of medicine. Is it not, therefore, permissible to assume that the relatively small number of experiments, for the performance of which they managed to snatch a few moments here and there from their clinical activities, gave to them the attitude of mind that made them the fountain-heads of all medical knowledge during the long periods of medical aridity that succeeded them?

In order, then, to give a just valuation to the debt which the physician of to-day owes to animal experimentation, account must be taken, not only of the results capable of more or less direct application to the practice of medicine, but also of such observations and experiments on man as are stimulated by experiments on animals and of the attitude of mind of the physician toward his patient determined by the scientific, and therefore critical, atmosphere surrounding his activities.

I. THE DISCOVERY OF THE CIRCULATION

The story of the discovery of the circulation of the blood has been so frequently told that it will not be necessary to review it here in any great detail. Indeed, my only reason for relating it at all is to attempt to show the part played by animal experimentation in its unfolding. The limited scope of this paper compels me to confine myself to the most important phases of, and contributions to, the subject.

The earliest recorded views on the physiology of the blood-vessel system that are entitled to serious consideration are those of Hippocrates. There seems to be no good reason for believing that Hippocrates actually performed carefully planned experiments on animals. The statement is, however, made[1] that Hippocrates (the name stands for a period rather than an individual) probably acquired his knowledge, among other ways, through observation of votive offerings, of slaughtered animals, and of injuries received in war and peace. These are tantamount to animal experiments; they are chance operations on living animals. Such slow and uncertain methods of acquiring knowledge must, however, have led to the development of a far from perfect theoretical scheme of the blood-vessel system. I call attention here only to his observation of pulsation in the aorta and pulmonary artery with the obvious comment that this phenomenon could have been revealed only by viewing the artery exposed in the living animal.

Whether Aristotle performed experiments on animals seems to be a matter of dispute.[2] In any event, however, his views are probably mainly the outcome of reflection based on dissection and the accumulated knowledge of his time. And in many respects, it might be added, Hippocrates was nearer to the truth than Aristotle.

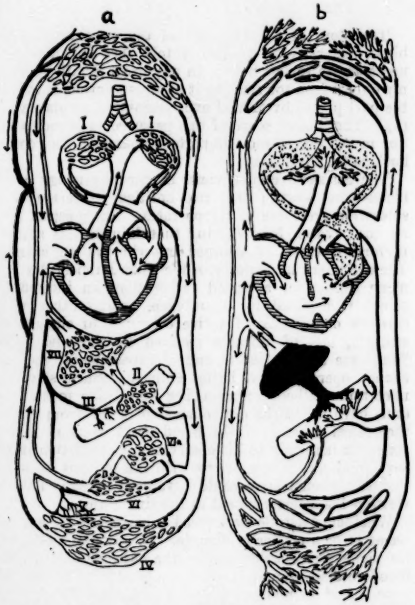
The contribution of Praxagoras to the physiology of the blood-vessel organs consisted in drawing more clearly than had Hippocrates the distinction between the arteries and veins, and in showing that "the phenomenon of pulsation, previously regarded as a common attribute of arteries and veins, really belonged only to the arteries. . . . They were, furthermore, distinguished by the nature of their contents; for, while the veins were still considered as receptacles for blood, the arteries, according to the new view, contained no blood, nor any liquid material, but only an invisible gas or air."[3]

I have not succeeded in discovering the source of Praxagoras' views on the pulse; it is, however, evident that they could have arisen only from experiments or chance observation on living man or animals. His erroneous conclusions that arteries contained air must have

1. Neuburger and Pagel: Handbuch der Geschichte der Medizin, Jena, 1902-5, i, 236.
2. Nicolai: In Nagel's Handbuch der Physiologie, Brunswick, 1909, i, 674; and in Neuburger and Pagel Vol. i.
3. Dalton: History of the Circulation, p. 38.

been drawn from observations on dead, not on living animals.

The next important contributions to the physiology of the blood-vessel organs seem to have been made by Erasistratus. They were based on experiments on animals[4] and on dissection of the human body. He seems to have been unduly influenced by the views of Praxagoras: the veins still contain nourishing blood, the arteries "vital spirits." Experimentation, however, forced him to proceed one step in advance of the views then held and admit the existence of "synanastomoses" of the arteries and veins, which, however, allowed blood to pass into the arteries only under abnormal circumstances, as in plethora and when an artery is opened.



Scheme of the circulation (Nicolai); (a) according to Harvey (modified); (b) according to Galen (reconstructed). Heart-wall shaded; arteries heavily contoured; veins doubly contoured; capillaries lightly contoured; lymphatics (nutriment) solid black; air dotted; I, lung capillaries; II, intestinal capillaries; III, chyle capillaries; IV, somatic capillaries; V, lymph spaces; VI, renal capillaries; VIa, glomerular capillaries; VII, liver capillaries.

Erasistratus also describes accurately "all of the cardiac valves and their action. According to him, they provide the mechanism by which the heart alternately takes in and expels blood on the right side and pneuma on the left."[5]

There now occurs a gap of almost 500 years in the progress of medical science and art, and there seems to be no evidence that careful animal experiments were made during this interval. The gap is closed by the activities of practically a single individual, Galen, through whose animal experiments, coupled with keen clinical observation, the physiology of the blood-vessel system was advanced another step.

4. Nagel: Handbuch der Physiologie, p. 674.
5. Dalton: History of the Circulation, p. 57.

Galen's main contribution to this subject consists of the proof that the arteries contain blood and not pneuma. Two experiments are offered as proof of this fact:

1. "Expose an artery of a living animal. Then open it by applying to it, as you choose, either the point of a writing style, a needle, a slender scalpel, or any similar instrument that will make a narrow cut. Blood will at once exude. The artery, then, must have contained blood and not pneuma.

2. "The artery of a living animal is exposed by dissection, and, after isolating it with a cord on two sides and then opening it in the middle, we showed it to be full of blood."[6]

Galen's conception of the blood-vessel system is very well illustrated in the accompanying diagram (b). The nutriment taken up from the alimentary canal is converted into blood in the liver. Thence it is conveyed by the veins to all parts of the body, including the lungs (through the pulmonary artery), for the purpose of nourishing them. "The venous blood was dark, thick, and rich in the grosser elements of nutritive material." From the air carried through the pulmonary vein to the left ventricle from the lungs the vital spirits were extracted and added to the blood.[7] Or, according to another account,[8] the blood, traveling back and forth in the pulmonary vein, transported the pneuma from the lungs to the left ventricle. "The arterial blood (then) was thinner, warmer, bright-colored and, above all, spirituous." "As every organ is supplied with both arteries and veins, it can absorb each kind of nutriment in due proportion for its own needs." "The pulse was due to a 'pulsatile force' resident in the walls of the artery, but derived by them from the heart, in which it also existed. This was a force of active expansion, dilating the artery and attracting fluids into its cavity; while its subsequent contraction caused an expulsion of its contents in the same degree. Thus the diastole of the artery was an active, and its systole a passive movement."[9]

These views of the blood-vessel system prevailed until the Renaissance. At this time the dissection of the human body, which previously had been forbidden, led anatomists first to question some of the Galenic physiologic doctrines and then to seek the answers in the living animal. Thus was animal experimentation revived after a 1,200 years' sleep which began with Galen's death.

Vesalius, the father of anatomy, showed experimentally that the pulse was not dependent on the uninterrupted connection of the walls of the arteries with the heart, as Galen had maintained, since the peripheral part of a severed artery, connected with the heart by means of a cannula, still continued to beat.[10]

The next step was the refutation of the view handed down from the earliest times that the blood passed through the ventricular septum from the right to the left side, and the substitution in its place of the idea of the lesser circulation. Servetus, religious reformer and physician, was the first to surmise this course of the blood from the right to the left ventricle. In a book entitled "Christianismi Restitutio," dealing almost exclusively with questions of religion, there is inserted a strikingly clear description of the pulmonary circulation. No mention is made of animal experiments, and it is usually stated[11] that Servetus jumped to the conclusion which Realdus Columbus subsequently proved

6. Galen: Quoted by Dalton, p. 72.
7. Dalton: History of the Circulation, p. 77.
8. Nagel: Handbuch der Physiologie, p. 675.
9. Dalton: History of the Circulation, p. 78.
10. Nagel: Handbuch der Physiologie, p. 677.
11. Dalton: History of the Circulation, p. 122.

V 19

by means of experiments on animals and probably in complete ignorance of the views of Servetus on the subject.[12] It should not be forgotten, however, that Servetus' argument was based on the then known physiology of the circulation, which was the result of animal experimentation. In his experiments Columbus "always found the arteria venalis (pulmonary vein) containing no air, but full of arterial blood and yet not pulsating."[13] Columbus, it might be added, was thoroughly imbued with the importance of animal experiments in the elucidation of the functions of the blood-vessel system. "One learns more in a day from the vivisection of a dog," he says, "than from feeling the pulse or from reading Galen for months."[14]

There seems to be some difference of opinion as to whether Cæsalpinus is to be credited with making any contribution of real value to our knowledge of the blood-vessel system. Whereas, Dalton,[15] on the one hand, maintains that the main purpose of Cæsalpinus was "to defend the physiologic ideas of Aristotle as against Galen, rather than to carry the doctrine of either to a further development,"[16] Foster and the Italian authors,[17] on the other, concede to Cæsalpinus the recognition not alone of the true action of the heart-valves and the pulmonary circulation, but also of the fact that "the flow of blood to the tissues took place by the arteries and by the arteries alone, and that the return of the blood from the tissues took place by the veins and not by the arteries." And, whereas, Boruttau[18] states that Cæsalpinus did not clearly understand the greater circulation—the transit of the blood from the arteries to the right heart through the veins—Luciani quotes the following experiment as showing that Cæsalpinus had thoroughly mastered the conception of the circulation of the blood: "He [Cæsalpinus] observed that if in a living animal a vein be exposed, tied and shortly thereafter cut into on the capillary side of the ligature, the first blood to exude is of a dark color, while that coming later is lighter. This observation led him to assume the existence of anastomoses between the arteries and the veins."[19]

In view of the difference of opinion in regard to the value of the contributions of Cæsalpinus, we may be justified in concluding that, whatever his views may have been, they could not have been clearly and consistently stated. Possibly it was for this very reason that the doctrines of Cæsalpinus made no impression on his contemporaries. It would appear that little heed "was paid to them until they were disinterred, so to speak, by antiquarian research."[16]

How different the reception accorded Harvey's tract, "On the Motion of the Heart and Blood in Animals!" Whereas no notice had been taken of the views of Cæsalpinus in fifty-seven years, i. e., up to and after the time Harvey had committed himself in print, before sixteen years had elapsed Harvey's views had been subjected to published criticism, both favorable and unfavorable. The unfavorable criticism, it should be added, came, not from experimenters, but mainly, if not exclusively, from clinicians who, through fear that the new doctrine would wreck completely the fabric of medicine as then practiced, unwisely considered it better to bolster up the tottering structure with the old views than to rebuild it on the firmer foundation of animal experimentation. Those who then and since have put Harvey's views to the test of experiment have succeeded in substantiating him in all but a few minor details. The reason for the stability of Harvey's views may be gleaned from the well-known introductory words to the tract which laid the foundation of modern experimental medicine:

> When I first gave my mind to vivisections, as a means of discovering the motions and uses of the heart, and sought to discover these from actual inspection, and not from the writings of others, I found the task so truly arduous, so full of difficulties, that I was almost tempted to think with Fracastorius, that the motion of the heart was only to be comprehended by God. . . . At length, and by using greater and daily diligence and investigation, making frequent inspection of many and various animals, and collating numerous observations, I thought that I had attained to the truth, that I should extricate myself and escape from this labyrinth, and that I had discovered what I so much desired, both the motion and the use of the heart and arteries. From that time I have not hesitated to expose my views on these subjects.[20]

With the appearance of Harvey's work, the blood-vessel system, with at best imperfectly understood functions, becomes known to the world as the circulatory system, a term that stands at one and the same time for a system of organs and the mechanism thereof.

Harvey's demonstration of the circulation of the blood was incomplete; he had to assume the existence of "porosities of the flesh" in order to account for the passage of the blood from the arteries to the veins. Four years after Harvey's death, however (1661), the missing link was supplied by Malpighi, at one and the same time physician, anatomist, physiologist, histologist and the founder of scientific pathology. With the aid of the microscope, Malpighi succeeded in following in the lung of the living frog the course of the blood from the arteries through the capillaries into the veins, "so that," to use Malpighi,'s words, "the circulation of the blood is evidently exhibited."[21]

Thus, in barest outline, was the fundamental action of the blood-vascular system determined. The necessary facts, it has been seen, were gathered from all sources; the most important and decisive ones, however, were all the outcome of experiments on animals. Inferences from structure were made by all investigators; but, unsupported by experiment, they failed, even in the hands of Harvey, to lead to the truth. Nor could the case have been otherwise; a new mechanism, to be understood, must be seen and studied while in action.

The discovery and demonstration of the circulation of the blood ends the first phase of the physiology of the blood-vascular system and begins the second. With this second phase the physiologists of to-day are still concerned; it has to do with the elaboration of the details of the circulation. The limits of this paper make it impossible even to enumerate the lines along which the investigations have been carried, were the list to include only those of direct practical significance, and those in which animal experimentation has played a part. For the purpose of recalling to the mind of the reader some of the more important results of this activity, mention may, however, be made of the discovery of the automatic action of the heart, its regulation through the inhibitory and acceleratory nerves, of the vasomotor

12. Luciani: Lehrbuch der Physiologie, German Edition, 1905. I.
13. Dalton: History of the Circulation, p. 129.
14. Neuburger and Pagel: Handbuch der Geschichte der Medizin, p. 27.
15. Dalton: History of the Circulation, p. 147.
16. Foster: History of Physiologie, p. 35.
17. Luciani: Lehrbuch der Physiologie, 1905, I.
18. Neuburger and Pagel: Handbuch der Geschichte der Medizin, II, 332.
19. Luciani: Lehrbuch der Physiologie, 1905, I, 122.
20. Harvey: De Motu Cordis, 1628; transl. by Willis.
21. Dalton: History of the Circulation, p. 224.

mechanism; of the measurement of the blood-pressure and blood-velocity, of the origin and transmission of the pulse as a wave, of the cause of the heart sounds, of the survival of organs with artificially maintained circulation, etc. Reference will be made in Parts II and III of this paper to the practical bearings of these and of many other contributions.[22]

(To be continued)

148 West Gorham Street.

A METHOD FOR THE MATHEMATICAL READING OF THE ORIGINAL WASSERMANN REACTION

PRELIMINARY REPORT

WALTER J. HEIMANN, M.D.
Chief of Clinic in Dermatology, Mt. Sinai Hospital Dispensary
NEW YORK

To the physician, for whom it has become a practical diagnostic necessity, the reports of the Wassermann reaction have presented great vagueness and inaccuracy. The Wassermann test is based on a few simple facts. Antigen produced from syphilitic liver, guinea-pig's heart or beef-heart, according to their respective availability, in solution of a given determined strength; a 20 per cent. solution of inactivated serum of the patient to be tested; and a 10 per cent. solution of complement from the uninactivated serum of a guinea-pig, each solution being in the bulk of 1 c.c., are poured together in a test-tube and remain in a thermostat or water-bath for one hour at body temperature. If the suspected serum contains suitable amboceptor the antigen and complement will be linked, and the reaction will be one which we consider positive. We must in some way determine whether such a process has occurred. This we do by introducing 1 c.c. of washed sheep's erythrocytes in a 5 per cent. suspension, and 1 c.c. of a solution of rabbit serum of known hemolytic titer, the rabbit having been immunized to the aforesaid red corpuscles. After the addition of these two ingredients the liquid in the test-tube is pink in color and opaque. The tube is once more subjected to body temperature for one hour

TABLE OF RESULTS IN TWENTY-TWO WASSERMANN TESTS, EXPRESSED IN PERCENTAGES AND BY OLD METHOD

Source of Cases.	No.	Description After 16 Hours. Sediment.	Fluid.	Per cent. After Centrifuging.	Old Method.
March 14, Maternity service. Dr. St.	1	Heavy sediment.	Clear fluid.	100	Very strong. ++
	2	Fairly heavy.	Pink fluid.	75	Very strong ++
	3	No sediment.	Wine-red fluid.	0	Negative. —
	4	Slight dark-red.	Dark red fluid.	25	Moderate. ±
	5	Very little sediment.	Dark red fluid.	About 10	Weak. ?
General service and private practice of a New York physician. Dr. S.	6		Wine-red fluid.	0	Negative. —
	7	Dark sediment.	Pink fluid.	80	Very strong. ++
	8	Dark sediment.	Pink fluid.	80	Very strong. ++
	9		Wine-red color.	0	Negative. —
	10	Dark red.	White fluid.	100	Very strong. ++
	11	Dark red.	White fluid.	100	Very strong. ++
Private cases.	12	Very little dark red.	Dark red fluid.	Too little to measure.	Weak. ?
	13	Dark sediment.	Deep pink fluid.	50	Fairly strong. +
	14	Little red.	Dark red fluid.	Too little to measure.	Very weak. ?
	15	Very little.	Dark red fluid.	Too little to measure.	Very weak. ?
Private practice. Dr. P.	16	Dark-red red.	Pink fluid.	50	Strong. +
Private practice. Dr. W.	17	Dark-red red.	Pink fluid.	50	Strong. +
Private practice. Dr. A.	18	Dark-red red.	Deep pink fluid.	25	Strong. +
	19		Wine-red fluid.	0	Negative. —
	20		Wine-red fluid.	0	Negative. —
March 18. Private practice. Dr. So.	21		Wine-red fluid.	0	Negative. —
Private practice. Dr. W.	22	Dark red (litt e).	Red fluid.	20	Very weak. ?

It has been the custom to call the reaction "negative" or "positive," and if positive, "very weak," "weak," "medium," "strong," or "very strong." Such terminology, by its own nature, makes for inexactitude, which is anything but desirable, to say nothing of being unscientific. The human mind cannot grapple with adjectives. It needs figures. Completely to grasp variations of a color-scheme or quantitative gradations, we must obtain our impressions numerically. The terms are from zero to one hundred. No one would think of writing a hemoglobin estimate as pale pink, pink, red, dark-red, crimson, etc. We have determined what intensity of color in hemoglobin represents 100 per cent., and we have readjusted our conception of weaker concentrations accordingly. A similar, if not homologous, method would be of great use in writing the Wassermann reaction, and it is such a method which I am about to present.

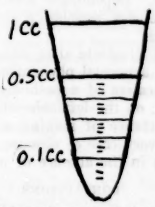
22. It will be quite impossible to give full credit to all investigators in the fields referred to. Nor am I sanguine enough to believe that I have succeeded in my attempt to mention the first workers who have called the attention of the scientific and medical world to the subjects to be discussed.

and the result is noted. If the complement be not bound to the antigen by the human amboceptor, it will be free to link itself with the hemolytic system and hemolysis will take place.

The crux of the entire reaction is to determine what becomes of the complement. If it join the system composed of antigen and human amboceptor, the reaction is positive; if it join the system consisting of sheep's red blood cells and sheep's amboceptor, the resulting blood laking denotes a negative reaction. Between the two extremes of total binding of the complement and total hemolysis, the gradations are infinite. The proportion of bound and free complement varies, so that visual signs of binding or laking are expressed in terms of opacity, translucency, or transparency of the fluid at the end of the test. These variations have been recorded graphically by the minus sign for a negative reaction, the plus sign for a positive, and two plus signs for a strongly positive. Almost everyone has his own system. Obviously such a method would not only vary between two individuals, so that the man who makes the test might have

a different idea of the value of his hieroglyphics from that which would be connoted to anyone else, but it would vary from day to day as to the investigator himself. Thus we have had, and have, no unit of measure to standardize results. This want can be met by a method which is simplicity itself.

Into each test-tube we have introduced, as has already been stated, 1 c.c. of a 5 per cent. suspension of sheep's erythrocytes. In volume this is 1/20 c.c. In the course of the test either the entire volume is hemolyzed, or none, or only a variable portion. All we need do to determine this portion is to see what fraction of 1/20 a cubic centimeter remains at the termination of the test. After from sixteen to twenty-four hours all surviving red blood cells have descended in the tubes, and according to their number the deposit is heavy or light. They lie unevenly, however, in the concave bottom of the test-tube, and thus the eye can distinguish only the greatest quantitative differences in the red cells. In a pointed centrifuge tube these difficulties are somewhat less, and the gradations in the deposit easier to determine, but in different tubes of varying calibration inaccuracies are inevitable. Therefore, working on this principle, I employed graduated centrifuge tubes and centrifuged the contents of my test-tubes sixteen hours after removal from the thermostat. In this way I was able to read off



Graduated centrifuge tube.

the number of surviving red blood cells. I count total hemolysis as zero, and 1/20 c.c. of erythrocytes in bulk, or the maximum amount, as one hundred. By comparing the volume of surviving erythrocytes according to this scale, and recording the result in per cent., one immediately has a quantitative idea of the reaction. Thus, if 1/40 c.c. of red blood cells are left, the reaction is 50 per cent.; if 1/30 c.c., 66⅔ per cent. If n equals the reading in the tube, and x the desired percentage, the equation is:

$$1/20 : 1/n = 100 : x$$
$$x/20 = 100/n$$
$$nx = 2000$$
$$x = 2000/n$$

The bottom of the average graduated centrifuge tube is divided off as in the diagram, each fine space representing 1/40 c.c.

In this tube the graduation is too coarse. I shall have tubes made with thicker walls, finer calibration and larger spaces, and shall subsequently render a new report with my more accurate apparatus. This one is to be regarded as a preliminary communication, but it will be serviceable to indicate the value of the method.

Among about 400 Wassermann reactions I have made both here and abroad, I have as has already been stated, always been struck with the difficulty of imparting a conception to a second person of the strength of the reaction. The accompanying table will show at once the advantage of the new method over the old. But let me for a moment describe what is seen in a test-tube in which the reaction has been made after sixteen to twenty-four hours have elapsed. With a negative reaction we have merely a clear wine-red fluid; in a strongly positive test the red cells lie heaped at the bottom and above them the fluid is pure white. If the test be positive, but weaker, the cells are below and the supernatant fluid, containing dissolved hemoglobin, is pink, salmon-colored, deeper red, etc., according to the amount of hemoglobin in solution. The stronger the reaction the greater are the number of corpuscles at the bottom and the paler the color of the fluid. The weaker the reaction, the deeper the intensity of the fluid and the smaller the number of corpuscles. These differences expressed mathematically become definite and objective instead of subjective and vague, as they have been heretofore.

To procure the results in the accompanying table I did the reaction as outlined, and after sixteen hours shook up the contents of each tube, centrifuged for two or three minutes by electricity, and noted what part of 1/20 c.c. of corpuscles remained, calculating the percentage by the formula already mentioned. The character of the supernatant fluid after centrifuging corresponded exactly with that in the tube, as described in the table, before centrifuging. I shall apply this method to the Noguchi modification and publish my results of this together with further observations on the original test. The histories of the cases cited here have no bearing on the theme. Thus they were omitted in order to hasten my paper toward its object and its conclusion. In the table I represent side by side the old method and the new, for a contrast of the obvious inaccuracies of the former with the definiteness of the latter will speak more forcibly than countless paragraphs.

136 West Eighty-eighth Street.

AN AUSCULTATORY PHENOMENON MET IN INFANTS AND CHILDREN

H. LOWENBURG, A.M., M.D.

Instructor in Diseases of Children, Jefferson Medical College; Pediatrist to the Lebanon Hospital, and to the Jewish Maternity Hospital; Pediatrist to the Jewish Seaside Home, Ventnor, N. J.

PHILADELPHIA

The sign to which I wish to direct attention, so far as I am aware, has not been described previously. My search of the literature has been confined to the standard works on diseases of children. Briefly it may be stated as follows; normally the inspiratory murmur over the left side, especially posteriorly, in infants and children is decidedly louder and harsher than over the right side; or, reversely, the inspiratory murmur over the right side is weaker and less harsh than over the left side. Why this is so I can not explain positively, but I suspect that it may be due, in part at least, to the fact that in the left lung there being but two lobes, the same amount of air as enters the right lung is not distributed over as great an area as it is in the latter. Whatever its physics or its etiology may be I no longer have any doubt that this sign does exist as a normal phenomenon of the child's chest and that it has an important bearing on the diagnostics of pulmonary conditions. It has been regularly sought and found by myself and my assistants in all normal children, at my clinic at the Lebanon Hospital, Philadelphia, for the past year. Dr. Charles Mazer, whose attention I first directed toward it more than a year ago, informs me that since then he has

examined every child that has passed under his care for it, and that he has never failed to find it in all normal children. That a recognition of this sign or the relative difference between the loudness and harshness of the inspiratory murmur of the two sides of the child's chest is of great aid in permitting a correct interpretation of pathologic conditions affecting the lungs and pleura can be best illustrated by the brief citation of a few cases.

CASE 1.—Female infant, aged 16 months. Normal birth, breast-fed, dentition normal; has ten teeth now; wasted and marantic in appearance; came to my clinic at the Lebanon Hospital with the diagnosis of marasmus; had been treated for this in another hospital for three weeks without benefit; no vomiting and bowels normal. The child's age, the presence of ten teeth and the absence of digestive symptoms precluded any gastro-intestinal condition as a cause of wasting and made the diagnosis of true marasmus very improbable. The temperature by rectum was 99 F. Percussion gave but the slightest possible impairment of resonance on the left side posteriorly, extending with even less emphasis into the axilla. Auscultation showed that the breath sounds on the left side equaled in intensity and harshness those on the right. Because we had become accustomed to regard the sounds on the left as normally louder and harsher this equalization was looked on as a distinct and marked impairment of the sounds on the left side, but in a comparative sense only, and a diagnosis of fluid on this side was made. Exploratory puncture revealed pus, and after thoracotomy and drainage the child made a perfect recovery in about three months.

CASE 2.—Female infant, 6 months old, seen in consultation. Diagnosis of bronchopneumonia of right side posteriorly had been made by the attending physician. He emphasized the impaired resonance under the angle of right scapula and pointed to some increase in the loudness and harshness of the breath sounds over this area. The child's temperature had been normal for ten days and leucocytosis was absent, but the child still coughed and had failed to gain, in fact, was considerably wasted. A careful examination of left side revealed slight impairment of resonance with breath sounds distinctly present but weaker than over the right side. There were no râles over the right side. The impaired resonance under the right scapula was regarded as due to the liver and the harsher than normal breath sound to an over-working lung, and the diagnosis of fluid on the left side was suggested. Puncture revealed a dirty-appearing, foul-smelling pus.

CASE 3.—Male infant, 13 months old. Temperature 103 F., pulse 140, respiration 64; face flushed; alæ nasi moving. Physical examination showed the left side resonant and a few râles; breath sounds harsh and loud posteriorly on the left. On the right side was detected an area of impaired resonance extending from the lower half of the right border of the scapula latterally toward the right as far as the midaxillary line. The inspiratory breath sound was harsh and loud posteriorly equalling that of the left side; expiratory sound was slightly prolonged and blowing. Fine moist râles were also heard. The diagnosis was acute lobar pneumonia of right middle lobe. Crisis on the fifth day. On the seventh day the temperature rose to 103 F. Physical examination showed flatness on the right side posteriorly and distant râles with breath sounds weaker than on the left, but sufficiently audible to resemble in intensity and quality the normal sounds on the right side. In view of the previous history of pneumonia, the flatness and the displacement of the liver and [illegible] heart, the diagnosis of effusion was made and confirmed by puncture.

CASE 4.—Male infant, 8 months old. Diagnosis of pneumonia on the left side was made by the attending physician. There was a cough, temperature of 102 F., pulse 110, and respiration 20; a few large moist râles were heard on both sides; chest was resonant throughout. The inspiratory sound was distinctly harsher and louder over left side posteriorly. I suggested that this was normal and made a diagnosis of simple bronchitis. Recovery occurred within three days.

CASE 5.—A female infant, 17 months old, the daughter of a physician, had a temperature varying between 102 and 104 F. for the previous five days. The father feared typhoid fever, but one of his colleagues had made a diagnosis of pneumonia on the left side, noting the loudness and marked harshness of the sounds on this side when compared with the right. The suggestion was made that this was a normal phenomenon. Further physical examination of the chest was negative. The child apparently was in no pain. The right drum-head was found to be red and bulging. Diagnosis, acute otitis media. I suggested an aurist. Puncture of the ear-drum was followed by a free discharge of pus, and recovery.

Cases 1 and 2 illustrate the value of recognizing the fact that there is something wrong (usually presence of fluid) when the inspiratory sound on the left side loses in strength and equals or is less in intensity and harshness than on the right.

Case 3 shows that, with other features (impaired resonance, râles and prolonged expiration) present, when the inspiratory sound on the right side is harsh and loud, approaching that which is regarded as normal for the left, trouble, usually consolidation, exists in the right lung. The second part of the case illustrates that weak breath sounds on the right may lead to confusion and prevent a correct conclusion, as they are normally weaker on this side. In such instances we can only compare the character of the sounds with that which experience has taught us to regard as normal for this side. Therefore auscultation, unless the breath sounds are entirely absent, is of little value in diagnosing fluid on the right side. Dependence must be had largely on the history of the case, percussion and the displacement of internal organs.

Cases 4 and 5 illustrate that, unless one is familiar with this sign as a normal phenomenon, one is liable to regard it as indicative of a pathologic condition, especially pneumonia, on the left side. Case 5 further illustrates the importance of making a complete physical examination in every case of obscure fever, not neglecting the ear, even in the absence of pain.

CONCLUSIONS

1. Normally in infants and children there exists a marked relative difference in the intensity and harshness of the inspiratory sound of the two sides of the chest, that on the left being louder and harsher. This difference is best noted posteriorly.

2. The absence of this sign on the left usually means fluid in the left pleural sac.

3. The diagnosis of fluid on the right is made more difficult by reason of this sign.

4. The diagnosis of consolidation on the left is made more difficult.

5. Unless this sign is taken into consideration the diagnosis of pneumonia on the left is apt to be made when other conditions are responsible for the fever.

6. Consolidation should be suspected on the right when the sound on this side equals in harshness and intensity that which is normal for the left.

7. Equalization of the sounds on the two sides, that on the left being weaker than normal, usually indicates fluid on the left.

1502 Diamond Street.

Prophylaxis of Typhoid Fever.—The discussion on this subject which was carried through eleven meetings of the French Academy of Medicine was concluded by adoption of a series of resolutions advocating specific sanitary and hygienic measures. A resolution was voted down which stated that the danger of contagion from healthy typhoid bacillus carriers is negligible in comparison with the danger from contaminated water. The possible peril from bacillus carriers, sick or well, and the necessity for seeking them out were emphasized in the resolutions adopted.

MYIASIS

A REPORT OF THREE CASES OF PRIMARY RECTAL INFECTION*

J. L. NICHOLSON, M.D.
RICHLANDS, N. C.

It has long been known that man is one of those organisms in which myriads of parasites and pseudoparasites find conditions congenial to their growth, development and continued existence. Among these are the diptera, which form the subject of this paper.

The diptera include all the different varieties of *Brachycera* or flies from which the larvæ of myiasis originate.

The following facts may be noted in regard to flies as set forth in an interesting paper by McCampbell and Corper:[1]

> Some lay no eggs, living larvæ issuing from the female (viviparous). It has also been noted that when certain of the dipteræ become parasitic, no wings are developed. Nothing seems to be known as to whether the larvæ may reproduce, as has been noted in the embryonic types of some other forms of animal life. The sexual organs in the larvæ, according to most entomologists, are not completely developed until after the adult fly stage is reached. The larva is entirely different from the adult fly; and, during the pupal stage which intervenes all the organs of the larva, except the reproductive, undergo degeneration, and are regenerated. Such an arrangement suggests a very high specialization of these organs; and it may be possible that when these larvæ become parasitic within the body, reproduction may take place. It seems positive that the eggs can hatch and the larvæ grow to full size in the intestines of man. It has also been observed that larvæ may exist for long periods of time within the body.

Myiasis is the term applied to the accidental infection of the body cavities and of the skin by the larvæ of these dipterous insects.

This infection by fly larvæ was designated by Hope as myiasis; and the condition has since been divided by other writers into myiasis externa, or dermatosa, and myiasis interna or intestinalis.

The following are some of the leading or principal families of flies the larvæ of which produce this condition: (a) The "blue-bottle," flesh fly; (b) *Lucilia macellaria*, the screw-worm fly and (c) the *Dermatobia hominis*, a tropical American fly. These are chiefly responsible for the external varieties of the disease.

Among the flies producing myiasis intestinalis we find the common house fly (*Musca domestica*), the *Sarcophagia* or flesh fly and the *Anthomyia canicularis*.

The common house fly seems to be the source of infection in the three cases coming under my observation. The number of generations of this fly varies greatly with climatic conditions, supply of food and other factors. The number in North Carolina, according to Metcalf, would undoubtedly be from 10 to 14 broods a year. This fly, like many other insects, passes through 4 distinct stages in the process of development—the egg, the larva, the pupa, and the adult, the full process requiring from 10 to 14 days. The adult fly lays the eggs in suitable places, usually in stable manure, occasionally on human excreta and decomposing vegetable matter. The duration of the egg stage in favorable weather is but a few hours. The larvæ are white-pointed maggots from 1 to 2 c.m. in length, and composed of 9 or 10 well-defined segments. The larval or maggot stage covers a period of about five days in summer, varying greatly, however, with the weather conditions in general. The pupal stage may not extend beyond 5 days, while under other conditions, as in winter, it may persist for months.

It is universally held that the invasion of such body cavities as the ears and nose, and of the wounds on the surface, is the result of the accidental deposit of eggs at the point infected; and that those which are found in the intestines are ingested with the food on which the adult fly has deposited its eggs. It is evident that little if anything has been said of infection by rectum. Finlayson's suggestion of the possibility of such an avenue of infection stands out alone against the generally accepted teaching of infection by the mouth following the accidental swallowing of the eggs and newly hatched larvæ with food.

The history of the three cases which have come under my observation in the last three years, and which I now propose briefly to relate, points almost unmistakably to rectal infection.

CASE 1.—*History.*—A native of Onslow county, North Carolina, married and mother of four children, ever since her first pregnancy, twenty years ago, has been suffering with "piles;" even prior to that time she suffered from painful menstruation and chronic constipation. For the last eight years her life has been still further burdened with rectal prolapse, proctitis and mucomembranous colitis. During this time her life has been that of a well-nigh bedridden invalid. She was absolutely confined to her room; a common stool chair with an opening in the bottom and "chamber" underneath, exposed to the flies, served her as a commode. In the summer of 1906 she discovered large numbers of small, white worms or maggots, as she calls them, in her stools, to which she called my attention. On examination, these organisms proved to be larvæ of the common house fly. During this summer as well as in 1907 and 1908, she had several recurrent attacks of the infection, each being manifested by expulsion of from fifty to several hundred dipterous larvæ. Preceding and accompanying each attack, digestive disorders, vomiting, colicky pains, abdominal distention and increased mucous bowel discharges—symptoms common to her—were greatly aggravated. At times these parasites were expelled massed or clumped in small balls, approximately the size of an ordinary marble; at other times they were equally mixed with liquid mucoid stools. After each expulsion there came a distinct amelioration of all the bowel symptoms. This patient, of course, was anemic, pale, almost cadaverie, suffering greatly with indigestion and all manner of abdominal and rectal distress.

Management and Course.—Having failed to prevent the recurrence of these attacks of myiasis by any manner of medication or rectal irrigation, and also failing to get her consent for proper operation, about the middle of the summer of 1908, I advised absolute protection of the anus from all approach of flies during the act of defecation. The result was a complete cure of the infection, without any subsequent recurrence to date, together with a marked improvement of the rectal and colonic troubles. Such satisfactory results, coupled as well with the statements of the patient that she had experienced no less than twenty such attacks during the summers of 1906-7 and 8, furnish the strongest and most convincing proof that this patient, at least, became infected by the deposition of the eggs of the house fly on the prolapsed rectal membrane during the time spent at stool on an open chair.

CASE 2.—*History.*—A white man, aged 24, a merchant by occupation, first came to me for treatment in July, 1908. He was thin, decidedly feeble and anemic. Eight years prior to my interview with him he began suffering with slight rectal prolapse, which now was quite an inch with each bowel passage. For the past six years he had discovered at various times hosts of small white worms in his feces. He brought samples of these parasites for my inspection. These, which varied sharply in length and size, were the larvæ of the common house fly. He claims to have had dozens of these attacks during these five years; and stated that as many as 500 of these little worms were sometimes expelled at a single defeca-

* Read before Seaboard Medical Association (Virginia and North Carolina) at Norfolk, Va., Dec. 9, 1909.

1. McCampbell, E. F., and Corper, H. J.: Myiasis Intestinalis Due to Infection with Three Species of Dipterous Larvæ. THE JOURNAL A. M. A., Oct. 9, 1909, p. 1160.

tion, while at other times only a few or so accompanied each stool. In addition to symptoms previously mentioned, each of his attacks was preceded for 48 hours by sinking, depressed feelings, accompanied by burning, internal, colicky pains near the region of the umbilicus. These symptoms, to him significant of the approaching expulsion of maggots, loss of appetite, nausea, colic, and diarrheic actions, ushered in the attack. The first loose stool contained the majority of the larvæ, all being expelled in 3 or 4 stools. After this the diarrhea, burning colic, nausea and depression subsided. His life habit had been to be slow at stool and always to defecate in the horse stable, if possible.

Management and Course.—My injunction to him to quit the use of the horse stable as a privy and to use a closed vessel, caused a cessation of his infections from July, 1908, until August, 1909, when he reported the return of the maggot and pleaded guilty to a return to his horse stable practice. Another point of interest is that all the attacks of this patient came in the summer months, the earliest recalled occurring in April.

CASE 3.—*History.*—The patient, a white woman, aged 50, married 30 years, and the mother of 9 children, in July, 1908, came to my office for treatment; she was pale, almost yellow in complexion, very nervous, and suffering with acute indigestion and diarrhea. The attacks, alternating with constipation, had troubled her at irregular intervals for 2 years or more. She came much distressed because she discovered that morning while at stool that hundreds of little white maggots had come from her bowel. This patient was a constant user of an open privy, and was a sufferer from internal piles, which at times came down during defecation.

Management.—The same advice to keep off the flies was given to this patient, but as I have lost sight of her, I cannot speak with positiveness of her recovery.

SUMMARY

Having thus cited the peculiarities of each of these cases, let me briefly submit the following summary as a closing feature, believing that the similarity of symptoms and surrounding conditions common to all three cases are of significant interest:

1. All the individuals affected were white adults, intelligent, fairly cleanly of habit and truthful of statement.
2. All suffered constantly or periodically with protrusion of folds of the rectum during defecation.
3. All were equally exposed to fly contamination during the process of defecation.
4. All suffered with more or less tenesmus, and were slow at stool, thereby offering ample opportunity for the deposition of eggs on the protruded membrane, smeared with feces, mucus and more or less blood.
5. All symptoms characteristic of these attacks ceased or were much improved with the expulsion of the maggots.
6. No recurrence of the infection took place in either of the first two patients so long as they followed my advice to protect the anus thoroughly from the approach of flies during the act of defecation. The third patient having been lost sight of, I am not able to speak with certainty regarding recurrence.

Finally, the facts set forth in these cases seem to me to demonstrate, beyond a reasonable doubt, that the avenue of infection was by rectum. This opens up an interesting field for further observation, and suggests that a large number of cases of myiasis intestinalis occur in persons affected with anal and rectal disease, and that in them it is due to the fact that the proper precaution to prevent rectal invasion has not been observed. The remedy, from this point of view, is evident.

Electrotherapy.—Electrotherapy must not be regarded as a cure-all, nor as a placebo, but if used in connection with other therapeutic measures it will be found to be a very useful servant.—H. M. Imboden, in *Albany Medical Annals.*

EXTRAUTERINE PREGNANCY

DISCHARGE OF FETUS BY RECTUM; PELVIC ABSCESS; INTESTINOVAGINAL FISTULA; GENERAL ADHESIVE PERITONITIS; PHLEBITIS OF BOTH LEGS; RECOVERY

J. R. LAUGHLIN, M.D.
HAGERSTOWN, MD.

Patient.—Mrs. J. B., aged 24; married six years; no children.

Present Illness.—She had missed two periods and was suddenly seized with severe pain and cramps in right side, followed by a bloody discharge which had continued three weeks, when I first saw her, June 8, 1908.

Examination.—The uterus was slightly enlarged and firmly fixed; there was a slight bloody discharge from the cervix. The pelvic organs were very tender and there was a board-like hardness over the hypogastrium. Temperature was 100 F., pulse 88.

Course of Disease.—The patient was treated for pelvic peritonitis for four weeks with improvement of symptoms, but no change in rigidity. July 5, her bowels became very loose with bloody stools, and on July 6 a partially decomposed fetus about two inches in length was passed at stool. A few days later the temperature rose to 104 F. and an incision made in the vaginal vault evacuated a profuse purulent discharge with fecal odor. Drainage was kept up for two weeks, but on investigation a recto-vaginal fistula was found by which feces were discharged through the vagina. Four weeks after the operation the fistula had closed, the vaginal discharge had ceased, and the woman seemed well when she suddenly developed a left femoral phlebitis; this promptly yielded to rest and elevation and she was discharged cured August 20.

Subsequent History.—Four months later she had what appeared to be a typical attack of acute appendicitis. An incision was made in the median line of the abdomen but the adhesions were so dense that the appendix could not be reached, as many as three loops of intestine were found firmly adherent together and it was impossible to find a piece of free intestine more than six inches in length. A few cysts filled with fluid were found; these were opened and an uneventful recovery followed. Four months later she had a similar attack, except that the pain was not especially localized.

She was put to bed and given local treatment, and improved for two weeks, when the old fistula reopened, but closed again in a few days. She again developed a phlebitis, this time in the right leg. By July 23, 1909, all symptoms had disappeared and she has continued well since.

146 West Franklin Street.

ACUTE PERFORATION OF A DUODENAL ULCER

J. T. ULLOM, M.D.
PHILADELPHIA

Patient.—S. M., aged 63, a married man. Aside from the case of a sister who died at 73 of "stomach trouble," the family history offered nothing of interest. The patient had had no serious illness beyond the ordinary diseases of childhood, and malaria at 38, but had suffered more or less for the last 20 years from stomach trouble, diagnosed by Dr. Osler near the beginning as "nervous dyspepsia."

Present Illness.—The patient was well during the winter of 1907-08, but in March, 1908, he had what he called an ordinary bilious attack, with clay-colored stools and vomiting of greenish material, after which he continually had more or less trouble which he referred to his stomach. This usually manifested itself two or three hours after dinner with distress, distention and belching; the attack, if not relieved by vomiting, would be followed by discomfort all night, accompanied by acid eructations. The vomitus was sometimes green, sometimes brown and often of amazing quantity. There was never any suggestion of blood in the vomitus nor was it ever coffee-ground in character. Gastric analyses made on numerous occasions showed a total acidity of about 40 and a free hydrochloric of about 20.

Urine analyses showed no abnormality except a specific gravity of 1010. Physical examinations made during this period showed nothing abnormal. The lungs and heart were normal, the abdomen contained no mass and there was no area of tenderness. The skin was sallow and the face expressive of illness. Despite his wretched condition and considerable loss of flesh the patient went to his office every day during the spring and early summer of 1908. About 11 o'clock one morning he had an attack of pain, referred to the right side of the abdomen, so severe as completely to prostrate him.

Examination.—The temperature was subnormal, the pulse 120, and very weak and the patient was bathed in a cold perspiration. The abdomen was extremely rigid, and exquisitely tender and the patient resisted any attempts to examine it.

Operation.—It was realized that some serious intra-abdominal accident had occurred; the patient was hurried to the Germantown Hospital, and a laparotomy was performed. A large incision was made, and a perforation was found in the duodenum just outside of the pylorus. This was closed and the abdominal wound sutured. The patient was returned to his room as quickly as possible, as his condition became very bad while on the table.

Post-operative History.—The patient reacted nicely and that evening at 6 was conscious, although uncomfortable. Temperature 98.6, pulse 96, respiration 20. At times during the afternoon his respirations were Cheyne-Stokes, but they were much better toward night. His condition remained pretty good for the next two days except for a complete suppression of urine. At the end of that time he passed a large quantity of urine and continued to void large quantities daily. This showed a trace of albumin and some hyaline and granular casts. Temperature and respirations remained satisfactory and the abdomen showed no signs of peritonitis. After seventy-two hours, on September 13, the patient became very restless, slightly delirious and hard to control, got out of bed, and tore out the stitches in the abdominal wound, allowing the wound to gap. He remained delirious and extremely restless. About midday, September 15, he was seized again with agonizing pain in the abdomen of apparently the same character as the initial pain, which could be relieved only by repeated injections of morphin. He died at 6:30 p. m. that day.

Post-mortem Examination.—A partial autopsy was obtained and there was found a duodenal ulcer just outside of the pylorus running longitudinally and a trifle obliquely, about 4 cm. in length, and 1.5 cm. in width. At the end of this ulcer nearest the pylorus was the perforation which had occurred on September 10 and which showed no signs of healing. At the other end of the ulcer was another perforation that had apparently taken place at 12 o'clock on the day of death, as manifested by the severe paroxysm of pain at that time. On microscopic examination there was complete erosion of the mucosa, submucosa, and the muscular layers and at the edge of the ulcer there was increased fibrous tissue and some round-celled infiltration. The kidneys were smaller than normal and the capsule stripped with some difficulty. On section the cortex was slightly contracted and microscopically the picture was that of chronic diffuse nephritis.

This case was of interest to me as offering considerable difficulty in diagnosis. Here was a man of 63, with a history of dyspepsia running back for twenty years, with periods of comfort alternating with periods of considerable gastric distress. After a year of good health, he began to lose flesh, became anemic, and experienced pain some time after meals, which was relieved by vomiting. There were acid eructations, but rarely spontaneous vomiting and no hematemesis, melena, or localized tenderness. The diagnosis now seems an easy one but before the perforation it was felt that there was very little on which to base a diagnosis. When the perforation occurred it was realized only that a rupture of some viscus had occurred, but whether appendix, stomach, intestine or gall-bladder could not be told with any degree of certainty.

When the literature on duodenal ulcer was examined, it was found that many cases are absolutely latent and perforation or a serious hemorrhage are the first indications of an ulcer. Gibbon and Stewart present seven cases of perforated duodenal ulcer and in three of these there was absolute latency, and in the other four, one showed symptoms of indigestion for twenty-four hours, one for a week, one for two weeks, and one for several months. Musser's case showed symptoms of hyperacidity for ten years. Smith found symptoms referable to duodenal ulceration in only three out of fourteen cases, although nine patients had digestive disturbances. Haggard states that ulcer of the duodenum very frequently exists without symptoms and a fatal hemorrhage or a perforation are the first signs of trouble. Morot, according to Haggard, finds that 20 per cent. of duodenal ulcers are latent. Shaw and Berry examined 157 cases post mortem and found that no history could be obtained in ninety-one. Moynihan states that many ulcers remain latent for a long period.

The classical symptoms of duodenal ulcer are three, pain, melena, and hematemesis. Pain is the most constant symptom found and usually comes on from one to three hours after meals. It is coincident with the discharge of the acid chyme into the duodenum and depends on the character of the food ingested. Sometimes it is relieved by eating. This is explained by the closure of the pylorus when food is introduced into the stomach. The pain is often relieved at its acme by vomiting and the patient immediately becomes normal again. The position of this pain is usually to the right of the median line and below the ribs in the position described as that of the gall-bladder.

It varies much in severity from a simple discomfort to a most agonizing pain and it rarely is found to radiate. Tenderness, which must be considered with pain, is not often found, owing, no doubt, to the position of the duodenum. The presence of blood in the stools, in the absence of hemorrhoids, is of course evidence of ulceration in the alimentary canal somewhere, and taken in connection with the characteristic pain, makes the diagnosis almost certain. Blood may appear in the stools as a frank hemorrhage, as old blood in tarry stools, or as occult blood. Every patient presenting symptoms referable to gastric or duodenal ulcer should be examined for occult blood. The vomiting of blood is more apt to occur in ulcer of the stomach, but is sometimes found in duodenal ulceration. In the twenty-three cases of Moynihan, hematemesis and melena occurred in four, hematemesis alone in three, and melena alone in two. No doubt in many cases blood would be found to be discharged by the bowel if more examinations for occult blood were made There are two grave accidents to be feared in duodenal ulceration, perforation and hemorrhage. Perforation gives the symptoms common to perforation of any abdominal viscus, prostation, weak rapid pulse, cold extremities, cold sweating, intense abdominal pain with board-like rigidity succeeded in a few hours by tympanites and the symptoms of peritonitis. The diagnosis can be made only on the history of the case and the location of the pain and tenderness. Hemorrhage is shown by pallor, shock and the appearance of blood at the anus. If a large blood-vessel is eroded death is apt to occur before anything can be done.

This case was a very instructive one and it seems now that a closer analysis of symptoms with an examination for occult blood would have made a diagnosis possible.

24 Carpenter Street.

IMPROVED ETHER INHALER AND BLOOD ASPIRATOR

EDWIN PYNCHON, M.D.
CHICAGO

In my paper in THE JOURNAL, June 20, 1908, were illustrated and described an anesthesia apparatus and a blood aspirator, which were designed for use in surgical operations in the mouth and throat. Having since then improved these devices I will describe briefly the changes made therein, which are shown in the illustrations here given. In place of the foot bellows formerly employed in the anesthesia apparatus (Fig. 1), I have substituted the less expensive and simpler Politzer air-bag of the six-ounce size, provided with an inlet valve in the bag, and have supplied, in addition, a similar valve in the tube leading therefrom to the ether bottle, in order to prevent any rearward motion of the air while the hand bag is being expanded. In this way the air current supplied is intermitting, and its motion is timed with the patient's inspirations.

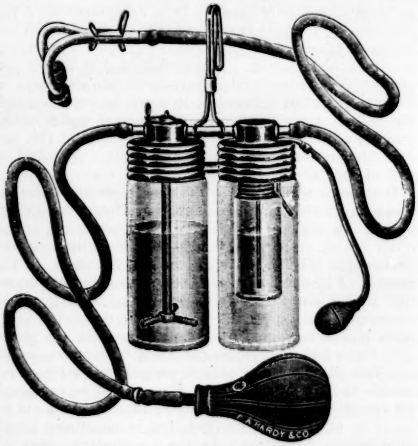


Fig. 1.—Anesthesia apparatus.

The bottles are of different shape, and of larger size, than those formerly employed. The first bottle is not more than two-thirds filled with ether. The second, or mixing bottle, as suggested by Brophy, prevents the passing to the patient of the fluid anesthetic, as might otherwise occur should the anesthetic bottle be too nearly filled, or should too much force be employed in the supply of air. The air-tube in the ether bottle is provided with a three-pointed extension, so as to divide up the entering air, and cause its better exposure to the ether. By operating the lever on the top of this bottle, which swings 180 degrees, the passing air current may be more or less forced to bubble through the ether.

In the second bottle, which was formerly employed as only a mixing or safety chamber, I have been enabled, owing to the wide mouth, to introduce a smaller bottle for the use of chloroform, which thus can be added to the etherized air current if at any time required. By slightly compressing the small connecting rubber ball the air above the chloroform is condensed, so as to force outward into the larger bottle a few drops thereof through the escape tube. At all other times the etherized air passes about this bottle without absorption of chloroform.

From the mixing bottle a rubber tube leads to the patient; it terminates in a Y-shaped tip, with conical hard rubber plugs, so as to fit tightly into the patient's anterior nares. In order to meet the requirements of different ages, from infancy to maturity, I have found that four sizes of these tips are required. The patient is first anesthetized with the mask, in the usual manner. Then a change is made to the inhaler as the operation is begun. In this way the anesthetist is at no time in the way of the operator, and an even anesthesia can be easily maintained. Furthermore, as all the etherized air is compelled to pass through the nose, it is both warmed and humidified before reaching the lungs.

In the blood aspirator the same size and style of bottle is employed as those used in the inhaler (Fig. 2). Being wide-mouthed it permits of easy emptying of the coagulated blood. The aspiration tip differs from the one formerly employed, and terminates in a cage of perforated metal, with one large conical opening at the end for blood clots. This cage can be unscrewed and removed for cleansing. With this device, after the mouth gag has been adjusted, blood and saliva can be removed, and the operative field kept fully exposed. The exhaust, when required, is created by the air pump, which is operated by a nurse. The receiving bottle is supported by a tape from the neck of the assistant who, while holding down the tongue with a depressor in his left hand, has in his right hand the aspiration tip for use when required. The patient is in the Rose position, whereby the larynx is above the plane of the pharynx. With the aid of the aspirator, accumulating fluids are removed, and are therefore not drawn in the lungs, causing respiratory arrest, or swallowed, causing vomiting. Through a combination of the improved anesthesia and the aspiration, postoperative complications are to a large extent avoided.

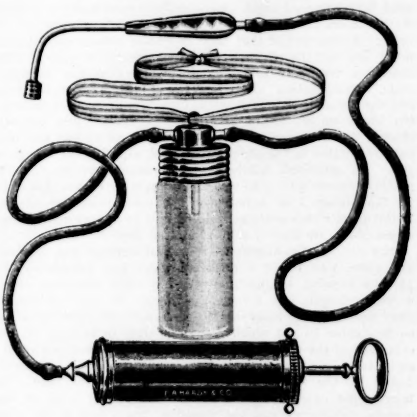


Fig. 2.—Blood aspirator.

103 State Street.

ERYTHEMA FROM BALSAM OF PERU

H. H. HAZEN, M.D.

WASHINGTON, D. C.

Of late years there have been a number of cases reported in which balsam of Peru applied locally in scabies has caused a nephritis and it frequently sets up a dermatitis at place of application. Lewin[1] mentions a case in which 8 gm. applied locally to the arms, shoulders, and chest for scabies caused an urticaria and bronchitis. With the exception of this case I have been unable to find anything in the literature that corresponds to my case.

The patient, a white man, aged 20, had contracted gonorrhea, and a severe epididymitis shortly developed. While under treatment he noticed an itching between the fingers, which soon spread up to the wrists, and then up the forearms, being especially marked on the flexor surfaces of the elbows. The eruption appeared on the abdomen, and one or two papules appeared on the penis. The lesions appeared as papules or vesicles, which itched intensely, especially at night. The patient's physician, Dr. Craig, diagnosed scabies and recommended either sulphur or balsam of Peru. At a later date, Dr. Craig informed me that the boy had himself made a mixture of balsam of Peru and lard and had used it very freely. After the use of the ointment for one week there appeared on the face and all over the body a blotchy ill-defined eruption that itched intensely when he perspired. It is to be noted that the patient had taken no drug whatsoever internally for the gonorrhea, now almost cured; I saw him two weeks after the secondary eruption had appeared. In the interval he had thought that the scabious lesions were spreading and had been applying the ointment very vigorously and had been rapidly getting worse. He had no trace of the scabics, but was almost completely covered by a macular, ill-defined, measly eruption that was of a faint pink or purplish color. The macules were about 1 cm. in diameter and were roughly oval in shape. Over the extensor surfaces of the knees the skin was thickened and of a markedly purplish hue. There was no factitious urticaria. The eruption resembled that caused by the internal use of copaiba, except that it was paler in color. To some extent it resembled a macular syphilis, but no chancre could be found, there was no glandular enlargement, no alopecia, and no sore throat or mouth. The diagnosis of erythema from balsam of Peru was made. The urine was examined for a possible nephritis. The specific gravity was 1005, the color pale yellow, not brown as is usually the case in balsam of Peru intoxications, and contained a number of gonorrheal shreds, but no albumin that could be demonstrated by either Heller's or the heat and acetic acid test. The ring test also failed to show any resinous bodies. There were no casts and no red blood cells. I ordered the use of the balsam stopped and prescribed instead a mild lotion. Within a week the patient was well, though previously he had been getting worse steadily. The results, I think, make the diagnosis certain.

1204 Eighteenth Street.

THE CRESCENDO MURMUR IN MITRAL STENOSIS

ALFRED E. COHN, M.D.

NEW YORK

Last August, Dr. E. M. Brockbank[1] published his theory of the crescendo murmur in mitral stenosis and concluded contrary to the current teaching, that this murmur was made during auricular systole (presystolic), that it occurred during the early portion of ventricular systole, possibly in the presphygmic period. Letters were subsequently published by Sir John Broadbent, Dr. Taylor and Dr. Samways criticizing Brockbank's notion from one point of view and another.

In October I reported[2] the findings in a case of mitral stenosis in which the presystolic murmur was constant and which persisted during those cycles in which there was ventricular silence, the irregularity being due probably, to digitalis poisoning. In this case the murmurs which accompanied ventricular contraction, together with the first and second sounds, were wanting, the presystolic murmur alone marking the occurrence of the cycle.

I wish to report a second case which I have been enabled to study with the permission of Dr. N. E. Brill. This also is a case of mitral stenosis, with a presystolic murmur, in which there are no cardiac irregularities. After admission to the hospital the patient was treated from time to time with tincture of strophanthus and the tincture and infusion of digitalis. During the time of the digitalis poisoning, an irregularity was noted which on analysis proved to be similar to that of the case already reported. Here also the irregularity was due to the fact that there was recurring ventricular silences. These occurred frequently after

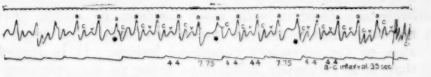


Fig. 1.—March 10, 1910. The long radial pauses are represented in the jugular tracing by a-waves only. The a-wave which follows the star (*) is premature by about 0.11 second. In this cycle also, the a-c interval is reduced from 0.35 second to 0.25 second. The upper line in both tracings represents the time in 1/5 seconds.

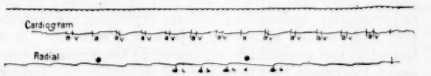


Fig. 2.—March 11, 1910. The upper curve is an inverted cardiogram; the lower is the radial tracing. The long radial pauses (*) are represented in the cardiogram by an a-wave only; a v-wave, representing ventricular contraction, is here wanting. It was in these cycles that the presystolic murmur alone, unaccompanied by first and second sounds together with their murmurs, was heard. It will also be noted that in this tracing the As-Vs interval gradually increases up to the cycle in which the a-wave occurs alone. The following cycle again shows a short As-Vs interval, 0.1 second; and gradually lengthens to 0.3 second.

every third beat, sometimes after intervals of five and nine beats. There was no regularity in the recurrences of these ventricular silences. At the time ventricular contraction should have taken place, there was heard to mark the occurrence of a cycle only a presystolic murmur, the two heart sounds and the accompanying systolic and diastolic murmurs being wanting at these times. It will be noted in the accompanying tracings (Fig. 1 that the a-c interval is prolonged to 0.35 second. It will also be noted that the auricular systoles after the cycles in which there was ventricular silence are premature, and that the a-c interval is considerably shortened. Some days after the administration of digitalis was stopped the irregularity noted disappeared. Dr. Brill has kindly confirmed these auscultatory phenomena. This case and the one already reported seem to me to throw considerable light on the question of the production of the presystolic murmur. It would seem that, since during the time of the ventricular silence it could be demonstrated that the auricles only contracted, it is reasonable to presume against Dr. Brockbank, that an auricular systole is responsible for the production of the crescendo murmur.

1. Lewin: Nebenwirkungen der Arzneimittel, 1899, p. 629.
1. Brockbank, E. M.: Brit. Med. Jour., Aug. 28, 1909.

2. Cohn, A. E.: Brit. Med. Jour., Oct. 16, 1909.

Therapeutics

MERCURY IN SYPHILIS

In spite of the vicissitudes through which practical therapeutics has passed in modern times, mercury still retains its rank as the one indispensable drug in the treatment of syphilis. Attempts have been made, however, to make its use more exact, and its effects more prompt. The importance of this subject has been increased by the finding of the *Spirochæta pallida* as the probable cause of the disease, and by the discovery of the Wassermann reaction, which has shown that the syphilitic element in disease is far more frequently an important factor in guiding treatment than had hitherto been realized.

In undertaking the treatment of a case of syphilis, several questions arise which have not yet been definitely settled, or at least about which there is still room for difference of opinion.

In the chronologic history of the individual case the first therapeutic question which arises is, when shall the administration of mercury be commenced? It has been the fashion with most teachers to advise that mercury should not be prescribed until the appearance of the secondary cutaneous lesions. It is argued that it is extremely difficult to make an accurate diagnosis of the primary lesion, and that if one commences the use of mercury before the rash appears, and then, if the rash never does appear, that one cannot be sure that he has not made a mistake in diagnosis, that the patient never had syphilis, and that consequently he has unnecessarily undergone a tedious, expensive, not beneficial, and possibly absolutely injurious, treatment. It is indeed a most astonishing argument to use against a proposed treatment, that there is a not inconsiderable chance that the diagnosis may be incorrect. But the discovery of the *Spirochæta pallida*, and the growing conviction among the members of the profession that it is the cause of syphilis, has lessened the liability to error in diagnosis. Dr. H. M. Christian, of Philadelphia, in an excellent practical article on this subject (*Monthly Cyclopedia and Medical Bulletin*, January, 1910), says that he "would be disposed to put a patient on treatment at once if *spirochætæ* were found on any given lesion, but he also states that he would require pretty convincing evidence that they were actually present. He also quotes Harris (THE JOURNAL Dec. 5, 1908) as saying, "After demonstrating the organism in a primary lesion, it is not only unnecessary but harmful to wait for secondary manifestations. The most logical therapy is excision of the chancre, when possible, and in all cases the immediate institution of vigorous antisyphilitic treatment."

Having decided to commence the treatment with mercury, the next question which arises is, what preparation of the drug shall be used, and how shall it be administered? In many cases it is preferable to administer the medicine internally and the preparations best adapted for such use are the protiodid, the biniodid, the bichlorid of mercury, and mercury with chalk. The one best adapted for general use is the protiodid, which may be given in doses of 0.015 to 0.02 gram (¼ to ⅓ of a grain) three or four times a day, the smaller dose and less frequently repeated if the medicine causes too frequent movement of the bowels. This treatment should be employed constantly, even in benign cases, for at least eighteen months.

The inunction treatment is an exceedingly "efficient method of attacking the disease in its incipiency." On this point Christian writes: "At the outset of every case of syphilis, if it is at all practicable and can be done without attracting attention, I advise a course of 20 inunctions, employing 4 grams (a dram) of the official mercurial ointment, rubbed well into the different parts of the body, once a day, the treatment lasting from at least 10 to 15 minutes." While patients are under this inunction treatment, a "body bake" or, as Christian suggests, a Turkish bath at least once a week is advisable. At the end of 3 weeks Christian begins the internal administration of mercury, but thinks that it is advisable to give a course of inunctions at least 2 or 3 times during the first year in every case of secondary syphilis. If there is "marked anemia with loss of flesh, and profuse eruption threatening to appear on the face, with marked alopecia," Christian believes that internal medication is temporizing, and more strenuous measures should be inaugurated. He also believes that every patient who has recovered from all manifestations of syphilis should receive a three weeks' course of mercurial inunctions twice a year for 4 or 5 years.

A third method of administering mercury, which has been gaining considerably in favor during recent years, is that by intramuscular injection. Most writers on this subject advise the intramuscular injection to be made into the gluteal region. It is not absolutely demonstrated that this is the only place or perhaps even the best place for these injections. Dr. Henry A. Pulsford, of South Orange, N. J. (*The Journal of the Medical Society of New Jersey*, September, 1909) writes: "In selecting the point for each puncture one should be sure that the layer of muscle into which the needle is to be thrust is sufficiently thick and not too well supplied with vessels and nerves. In general we avoid the lower part of the buttock, in order that our patients may sit without undue discomfort; the vicinity of the trochanter, because the deeper tissues, being tendinous and aponeurotic, are unsuited for injection; and the center of the gluteal region, because there is a possibility of puncturing the gluteal vessels or the sciatic nerve. Our choice is consequently restricted practically to two areas on either side, each about three inches in diameter, and situated, the one just to the right or left of the intergluteal fold, and the other midway on a line connecting the upper end of the fold with the anterior superior spine of the ilium. I have made a great many injections in both of these two areas without ever wounding any important vessel or nerve, and with but little pain or discomfort to the patients."

The best syringe for these injections is one made entirely of glass, of small caliber, and graduated to fractions of a minim, such as is made for tuberculin injections. The needle should be from 1½ to 3 inches in length. Steel needles are much cheaper than those of iridoplatinum, but are likely to be corroded by soluble mercurial salts.

Concerning the administration of the injections, Pulsford further writes: "The technic as far as sepsis is concerned is the same as that observed in the injection of a therapeutic serum. The sterile fluid is drawn into the syringe, and any air bubbles carefully expelled. Then the skin having been properly cleansed. the needle is thrust through it in a perpendicular direction so as to reach the required depth at a single stroke. Next assure yourself that the point of the

needle does not lie in a vein, by detaching the barrel and watching the lumen for a moment. If blood flows through the needle, make another puncture; otherwise replace the syringe and proceed with the injection. It is not necessary to massage the injected mass. The most careful practice is to make the injections with the patient lying face downward, but those well accustomed to the procedure may be properly injected standing, provided they are required to relax the gluteal muscles. The dressing of the puncture is necessary only when bleeding occurs."

The preparations of mercury used in this way includes both soluble and insoluble salts. The most useful soluble salts are the benzoate and the biniodid. These are well tolerated and efficient, and all others are superfluous, in the opinion of Levy-Bing, as expressed in his monograph on intramuscular mercurial injections, published in Paris, in 1909. The salts mentioned are used in 1 or 2 per cent. solution, in isotonic saline solution. The insoluble salts most frequently used are the basic salicylate, calomel and grey oil, the latter being an emulsion of metallic mercury in an oily vehicle. "The vehicle for calomel and the salicylate may be either an oil or a mucilage. In my experience the combination recommended by Levy-Bing of 3 parts of anhydrous wool-fat with 7 of white liquid petrolatum has proved satisfactory. It is most important that all these substances be pure and neutral. Calomel should be especially pure, and should be washed in boiling alcohol before being incorporated with the vehicle, and both calomel and mercury salicylate should be finely divided by prolonged trituration with the menstruum.

But of these preparations may be sterilized in a water-bath; the grey oil, however, is spoiled by heat and consequently must be prepared from sterile materials with sterile utensils and under aseptic conditions. As the process consists of a trituration of the mercury with the wool-fat for at least two hours, it may be imagined what a formidable task this is. If carefully guarded from contamination these injection fluids need not be repeatedly sterilized." (Pulsford)

Injections of soluble salts should be used when rapid mercurialization is required. They may be used at the beginning of treatment. The insoluble salts are indicated in the routine treatment of most cases. Calomel is usually more effective in urgent cases, but it causes too much pain to use in ordinary cases, in which the salicylate and the grey oil are preferable.

In beginning treatment it may be necessary to give an injection every day for a few days; but afterwards a weekly injection will be sufficient.

The average weekly dose is 1 grain of metallic mercury, 1 1/6 grains of calomel, or 1⅔ grains of salicylate of mercury.

Among the disadvantages of this form of treatment should be noticed the fact that they are more or less painful. With the soluble salts the pain begins at once and lasts for from 1 to 6 hours. With insoluble preparations it begins within an hour, and lasts from 2 to 5 days. The pain is most severe after calomel, and least so after grey oil, which is often entirely painless.

Hard masses of exudates, known as nodes, sometimes forms about the injected mass. These often retain a part of the injected fluid, which may subsequently be suddenly absorbed.

Embolism sometimes results from the injection of the fluid into a vein. Although this has rarely, if ever, proved fatal, it should be avoided. Abscesses rarely occur if the injections are properly administered.

The points of superiority over other methods of administration are that it enables the physician to introduce promptly into the general circulation a definite amount of mercury. It cannot be vomited, nor does it form insoluble combinations with the food or secretions, or pass through the alimentary canal and entirely escape absorption. It does not cause enteritis, nor does it become lodged in the liver, with the danger of being suddenly passed into the circulation in excessive amount. It does not cause diarrhea or loss of appetite. It has the advantage over inunctions that it does not cause irritation of the skin or dermatitis.

Intramuscular injections of mercury should not be used in patients who have excessive dental caries. Injections of insoluble salts should not be used in patients who are the victims of tuberculosis, nephritis, diabetes, hepatic disease, or cachexia. It should not be attempted to apply this treatment to patients who are unable to make personal visits to the physician at least once a week.

Whatever method of administering mercury is adopted, certain general hygienic rules must always be observed. The teeth must be put into good condition and the mouth must be kept clean. Chewing tobacco must be absolutely interdicted. Moderate smoking and temperate drinking may be allowed to those who are accustomed to the use of tobacco and alcoholic drinks, unless some special condition renders it advisable to discontinue their use entirely.

The Electrostatic Treatment of Lupus.—J. A. Voorthuis (*Proc. Roy. Med. Soc.*, February, 1910), has obtained good results in the treatment of lupus with static electricity after the method of Suchier. The process begins with thorough cleansing and disinfection of the parts to be treated. Under local or general anesthesia the tuberculous granulations are removed by strong, sharp curettes. After the bleeding has ceased and the wound has become almost dry the patient is connected with a metallic electrode in connection with the negative pole of the static machine. A pointed electrode connected with the positive pole is placed on the skin in the neighborhood of the wound and the circuit opened. Lifting the positive electrode 1 mm. from the skin the spark is seen and it is directed on every part of the wound. In five or ten minutes the wound is covered with a brownish crust, surrounded by an anemic ring of healthy skin. There is slight swelling, but this disappears in a few hours. Serum is often secreted, which should be absorbed by an aseptic tampon. The wound is then dry and no bandage is required. In a few weeks the crust is loosened and epidermization has taken place under it. A flat, pink scar is left, which in a few weeks becomes white. The application is not painful. A spot the size of a shilling requires treatment for half an hour. The cure takes much less time than the Finsen treatment. The difficulty is in removing all the granulations with the curette. It is possible also to use the spark inside the cavities of the nose and mouth, by means of a small glass tube and a copper wire. The effect must be due to the heat. By this method heat is continually created by means of proximity of wound and electrode, and it can be continued indefinitely without damage to the patient. Whether the speed of the ions, the stress of the current and the light concur in the effect is not determined.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

[For other information see second page following reading matter]

SATURDAY, MAY 21, 1910

THE AMERICAN MEDICAL ASSOCIATION—ITS POLICIES AND ITS WORK

VII. MEDICAL EDUCATION

The low educational standards which have obtained and which to a large degree still obtain in many American medical schools have long been deplored. It was not to be expected that a new and rapidly developing country like this should at once have schools of the same high grade as those found in the older countries; but there was no legitimate excuse for the fact that conditions with us were worse than in any of the other new countries—Canada, Australia, New Zealand, etc. The lack of legal restrictions in the organization and incorporation of medical colleges undoubtedly has been largely responsible for the existence of the great number of mediocre and low-grade medical educational institutions. As is well known the birth of the American Medical Association was the result of a convention called in May, 1846, to consider the subject of a higher standard of medical education. After the Association was formed, this subject was the principal topic in the annual discussions, and there are very few of the reports of the transactions that do not contain some discussion or some resolution on the subject. It would be hardly correct to say that these continued efforts of the Association accomplished nothing, since the resolutions and discussions directed attention to the deplorable conditions existing and many colleges did raise their standards, both of entrance requirements and of pedagogic efficiency. But the greater number did not raise them, and in such colleges students were admitted with little more, or even less, than a common school education; and they were graduated with the merest smattering of medical knowledge. In spite of pleas for higher standards the number of these low-grade schools increased until there were practically as many medical colleges in the United States as in all other countries combined. The attempts by the more progressive members of the American Medical Association to bring about a reform in the conditions that existed were rendered largely ineffective by the fact that the Association itself was dominated by representatives of the very institutions which needed reforming.

Such were the conditions when the reorganization of the American medical profession took place. After the reorganization, however, a new order of things was brought about. A special body was created—the House of Delegates—whose function is to transact the business of the Association; the members of this body are not direct representatives of proprietary medical colleges, but are representatives of the profession as a whole and therefore less likely to be biased in their efforts to carry out the objects of the Association.

Under these new conditions, in 1902, a committee on medical education was appointed similar to those formed in previous years but with far different results. In its report in 1904, this committee, recognizing the futility of temporary bodies, recommended the appointment of a permanent council with funds at its disposal to carry on its work. This recommendation was adopted; the Council on Medical Education was created; provision was made for the employment of a secretary who would devote all his time to the work; and an appropriation was made to meet the necessary expenses. Instead, therefore, of the short-lived, isolated efforts of temporary committees, however excellent their work, there was now an opportunity for steady continuous effort by a permanent body.

Recognizing from the first that its chief function was to obtain and publish facts regarding medical education, the Council immediately took steps to procure reliable information regarding medical standards and medical teaching institutions both at home and abroad. Lists of colleges were prepared, copies of their announcements secured and permanent files arranged; information was obtained regarding the entrance standards, the length of medical courses, the character of the college curricula and the requirements for graduation; copies of the medical laws and statements regarding the licensing of physicians in each state and in every foreign country were collected; in fact, official and reliable information bearing on all phases of medical education in this and other countries was obtained from every available source. The Council naturally took over the work, begun in 1901 by THE JOURNAL, of obtaining data regarding the number of students attending medical colleges, the number of graduates and other information relating to medical education, and published in the annual Educational Number of THE JOURNAL. It likewise assumed the responsibility of securing official statistics from state examining and licensing bodies, a work which was begun by THE JOURNAL in 1903, and on which were based the tables show-

ing the successes and failures of medical college graduates. This matter also is published annually in the State Board Number of THE JOURNAL, of which this issue is an example.

In addition to the data regarding medical colleges in the United States, the Council also compiled the first complete list of foreign medical colleges—a list which revealed the startling fact that there were practically as many colleges in the United States as in all other countries combined. This systematic collection of educational data has been continued from year to year, with the result that an abundance of valuable information has been obtained regarding medical education, medical teaching institutions and regulations governing the licensing of physicians in this and other countries. In fact, it is no exaggeration to say that there is now more information on these topics to be found in the educational department of the American Medical Association than in any other one place. The result is that the Council is now recognized, both at home and abroad, as an important source of information regarding medical education, and requests for such information are received daily.

The collection of information, however, by no means represents the extent of the Council's activities. From time to time it appointed special committees which submitted reports on preliminary education, the granting of advanced standing for work done in colleges of liberal arts, a model medical curriculum, the character of the state license examination and the use of practical tests, a model medical practice act and other important topics. Probably the most notable of these was the special committee on medical curriculum consisting of one hundred leading medical educators of the United States, assisted by a large number of other leaders in medical education acting in an auxiliary capacity.

Another important feature of the Council's work has been an annual conference on medical education which has been largely attended by members of the state licensing boards, by delegates of state medical associations, by officers of the United States governmental services and by representatives of medical colleges, universities and educational organizations, every section of the country being fully represented. At these conferences the Council presented reports of its work, calling particular attention to conditions of medical education and medical registration in the various states. These conferences have furnished an opportunity for a thorough discussion of all reports and methods of procedure and have been of great value to the Council in the formulation of its standards.

The most important work of the Council, however, is yet to be described. Almost at the outset it became evident that medical college catalogues and announcements, as a rule, could not be relied on to reveal actual conditions or to furnish data on which standards could be based. It was decided, therefore, to inspect, personally, all colleges and thus to obtain information at first hand. After the preparation of an outline of the points to be considered in the study of each college, this work of inspection was begun and during the college session of 1906-7, the personal inspection—the first ever made by any organization of all the medical colleges in the United States—was completed. Since then a second tour of inspection, which included the medical schools of Canada also has been completed. The conditions revealed by these inspections were far from creditable to the schools as a whole. Although a number of high-grade, fully equipped and excellently conducted medical colleges were found, there were many which were seriously deficient both in the quality and in the amount of work done. Several were found devoid of laboratory and clinical facilities, the sole equipment in some instances being a desk, a typewriter and some chairs. In some of the larger colleges the didactic curriculum of thirty years ago was being continued; instead, however, of giving the same course of lectures to two classes in two separate years they were now giving the same course to four classes in four separate years.

The collection, and, still more, the publication of these educational data, have had a tremendous effect on the standards of medical education. The publication of facts regarding medical licensure in the various states has aided in the movement toward higher, more uniform and more effective laws and methods in the licensing of physicians. The publication of statistics regarding tuition fees of colleges has answered the "poor boy" argument so frequently used as an excuse for conducting low-grade colleges. It has been shown that, for the same or even for less money than he would pay in a low-grade college, the student could secure a thorough training in a good, well-equipped medical school. The Council has shown that in practically every other country, thorough courses in the pre-medical sciences are required of every prospective medical student. The result of the publishing these facts has been that instead of only three medical colleges which require for matriculation a preliminary education in advance of the ordinary high-school course, there are now twenty-four having that requirement; and by the beginning of the next college session this number will doubtless be increased to forty or more. In addition seven state licensing boards now insist that applicants shall have had one or two years of college work preliminary to their medical course.

The publication of statistics showing the unsatisfactory conditions has had much to do with the rapid

reduction in the number of medical colleges. This has fallen from 166 to 132, although it must be admitted that the decrease in the demand for physicians has also had considerable influence. As a result of the mere publication of actual conditions, several colleges voluntarily have closed their doors in order that higher standards and improved methods of teaching might prevail and a number have been closed by the action of state licensing boards. A greater reduction in the number of schools, however, was through voluntary mergers in several cities of two or more colleges, forming in each instance one stronger and better equipped college. By this process of merging, in the last six years forty-four colleges have been replaced by nineteen institutions of higher grade.

The chief function of the Council, as already stated, is to obtain and to publish facts regarding medical education; and such publicity can result only in good to medical education in general. There is no desire to criticize any individual college for the Council fully recognizes the difficulties against which individual colleges have had to contend in their efforts to make improvements. It is encouraging to note that the majority of colleges have welcomed investigation, have invited a publication of the facts, and have greatly aided the Council in its work. It is to be regretted, however, that some medical colleges remain which may not welcome the presentation of facts and which may be injured thereby. We may apply to this educational situation what President Taft recently said of the commercial world: All business should be made legitimate so that laws for the general good will not injure that business. Similarly it may be said that those colleges which fear publicity should make such improvements in their methods and equipment that the publication of facts will not injure them. Curiously enough, some of the lowest-grade medical colleges inspected by the Council, were, in the opinion of their deans, "the best in the country," which points the truth of a statement made recently by the United States Commissioner of Education,[1] that the people not only need protection against those who use false pretenses in the realm of education but also against those who offer an inferior grade of instruction, under the delusion that it is as good as the best. "The well-meaning no less than the dishonest need some impartial test by which their educational offering may be proved, of what sort it is."

While much remains to be done and while there are still a large number of wofully deficient medical schools, the character of the greater number has been decidedly improved in the last few years. Entrance requirements have been increased and better enforced, college terms have been lengthened, new buildings and hospitals have been erected, new laboratories have been added and old laboratories better equipped, libraries and museums have been developed, a much larger number of expert, full-time salaried instructors has been secured and better methods of teaching have been adopted. In fact, so many have been the improvements in medical education as to warrant the assertion that more has been accomplished in the past six years than in all of the previous sixty years of the Association's existence; and it is gratifying in the extreme to those who have long struggled and pleaded for higher and better standards of medical education to see, at last, so much already accomplished and the outlook so bright for still greater things in the future.

Of course this work has created some opposition to, and in a few cases active antagonism against the American Medical Association. Exposing the weakness of some institutions affected powerful interests and, naturally, friction resulted. In the vast majority of cases, however—and this is but another illustration of the altruism that pervades the medical profession—the very evident need of such changes has been recognized and the efforts of the Council on Medical Education have been heartily endorsed and its work materially aided.

1. Science, October, 1909.

A MONUMENT TO MEDICAL HEROES

An article entitled "The Public's Forgetfulness," in the *Outlook*, Aug. 11, 1906, called attention to the heroic character and beneficent results of the work of the Army Yellow Fever Commission in Cuba in 1900, and urged some recognition by the nation of the achievement and of the courage of those who had submitted to experimental infections in the course of these investigations. This article attracted the attention of President Roosevelt, who, after obtaining a full and authoritative report on the subject from the War Department, sent a message to Congress which was probably the briefest he ever wrote. It was as follows:

THE WHITE HOUSE, Dec. 5, 1906.

To the Senate and House of Representatives:—The enclosed papers are transmitted to the Congress in the earnest hope that it will take suitable action in the matter. Major Reed's part in the experiments which resulted in teaching us how to cope with yellow fever were such as to render mankind his debtor and this nation should in some proper fashion bear witness to this fact.

THEODORE ROOSEVELT.

Senator Owen of Oklahoma, who has already given evidence of his interest in a matter of great practical importance to the public weal by advocating the creation of a department of health, has now shown himself equally appreciative of educational and moral values by the introduction of a bill (S. 8024) which will put into execution the recommendation of that message. It appropriates the sum of $50,000 for a statue in Washington "in honor of the Yellow Fever Commission

composed of Major Walter Reed, Surgeon, U. S. Army, Dr. James Carroll, Dr. Jesse W. Lazear and Dr. Aristides Agramonte, Acting Assistant Surgeons, U. S. Army, and the placing on the pedestal a bronze tablet in memory of the men who consented and assisted by the voluntary exposure of their persons in making the experiments which resulted in the discovery of the means whereby yellow fever is disseminated; the site to be selected and the pedestal and statue to be erected by and under the supervision of a commission composed of the President of the American Medical Association, the Secretary of War, Major-General Leonard Wood, U. S. Army, the Surgeon General, U. S. Army, and Colonel William C. Gorgas, Medical Corps, U. S. Army."

Congress has erected in the Capital City many statues to celebrated Americans, and the generous foreigners who assisted in our war for independence have not been forgotten. These have been chiefly men of the sword, and no man whose mission has been the saving of life, has been as yet so honored by our national legislature, although by private subscriptions statues have been raised to Rush, to Cross and to Hahnemann.

The time seems ripe for this action, as a decade has now passed since the commission published its findings to the world and all of them have been fully accepted by scientific men. Three of the members of the commission are dead; the fourth, Dr. Agramonte, is a distinguished professor in the university of Havana.[1]

It is pleasing to see that the proper interest of the American Medical Association in the erection of this monument is recognized by the naming of its president as the head of the commission to which the execution of the work is entrusted.

COLLECTION AND VALUE OF STATE BOARD STATISTICS

We present this week tabulated statistics based on examinations conducted by State Medical Examining and Licensing Boards. With the exception of one report from Alabama, for which the list of failures could not be obtained, the returns are complete. The four large tables, A, B, C, and D, give the results in detail, while tables E to M, inclusive, give important deductions from these tables. Table M gives the totals registered by each board by all methods, examination, on credentials, through reciprocity and otherwise, while Table N shows the registrations by reciprocity.

Tables I, J and K give the various medical colleges classified according to the percentage of failures (below 10 per cent., between 10 and 20 per cent. or above 20 per cent.). Although no positive conclusion can be formed in regard to any college on the basis of these statistics alone, nevertheless the deductions which they invite are surprisingly in agreement with the conclusions resulting from the thorough investigation and inspection of medical colleges conducted during the past five years by the Council on Medical Education. The fact that a few medical colleges of inferior grade, conducted largely by quiz-class methods, succeed in obtaining low percentages of failures and appear in Table I, points towards the necessity of changing the character of the state license examination so that actual knowledge—not theoretical knowledge obtained by "cramming"—shall be necessary to pass it.

These statistics are of great value and throw much light on several factors in medical education and medical licensure. The publication of the failures of graduates of the colleges has stimulated the colleges to better work, and efforts have been made to find and strengthen the weak places in their courses of instruction. The very fact that the reports are called for regularly has tended to unify the various systems of records kept by state licensing boards, while in some states records are now kept whereas previously they were not.

Furthermore, from the official data regarding medical college graduates, the Council on Medical Education, which now has charge of the collection and tabulation of these statistics, has been able to check up the state board reports, thereby rendering the tabulated statistics more accurate, making it certain that failures at examinations are not charged against the wrong college, and insuring a greater accuracy of state records. These statistics, therefore, not only have helped in the betterment of medical education, but also have led to the adoption of more uniform methods of record-keeping in the various states. Before THE JOURNAL began the publication of these statistics the accurate information, which can now be readily obtained, concerning the number of physicians registered each year in each state or in the United States was not anywhere available.

Probably no one has recognized the value of these statistics more than the state licensing boards themselves, who, through the furnishing regularly of carefully prepared reports have made possible the publication of this valuable information.

IMPROVED MEDICAL EDUCATION AT ST. LOUIS

Another evidence of the rapid improvement of medical education in this country is found in the action of the directors of Washington University, St. Louis, in reorganizing its medical department on a broad, strong basis. This action has been made possible by the union of a large general hospital and of a children's hospital with the medical school, and by gifts for medical, laboratory and clinical buildings aggregating, with the endowment, over six million dollars. The principal contributors to the endowment are Adolphus Busch, William K. Bixby, Edward Mallinckrodt and Robert S. Brookings.

1. Any one who is interested and desires to know all the facts relative to the work of the Yellow Fever Commission should obtain from his congressman or senator a copy of the document (Senate Document No. 520, 61st Congress, 2nd Session) which accompanied the introduction of the bill. This pamphlet contains the president's message and accompanying documents, including valuable official data.

A large tract of land at the east end of Forest Park has been secured, on or near which all the hospital and college buildings will be erected. In addition to the general hospital and the children's hospital it is proposed to erect laboratory and clinical buildings with dispensary facilities, and within a short time also a maternity hospital. It is stated that all hospitals are to be fully used for teaching purposes, the relation to be substantially the same as that which exists between the hospitals and the medical school of the Johns Hopkins University. New buildings throughout of modern construction and arrangement have been planned.

The university is to select the medical staffs of the hospitals and is seeking the ablest men for the leading chairs of the college. Among those already selected are: Dr. George Dock, formerly of the University of Michigan, now of Tulane University, New Orleans, for the chair of medicine; Dr. John Howland, of the University and Bellevue Hospital Medical College, New York, and a member of the Council on Pharmacy and Chemistry of the American Medical Association, the chair of pediatrics; Dr. Eugene L. Opie, pathologist at the Rockefeller Institute of Medical Research, the chair of pathology; and Dr. Joseph Erlanger, of the University of Wisconsin, the chair of physiology. The selection of men for the chairs of surgery, medical chemistry, preventive medicine and pharmacology is proposed in the near future and also of a number of able permanent assistants and a large and strong staff for supplementary teaching work and for the dispensary and hospital service. All the men who have been added to the faculty are to assume their duties within a year.

It is significant that the entrance requirements are not to be extreme. Beginning this fall one year of collegiate work will be required in addition to a four year high school education and this by the fall of 1912 will be further increased to two years of collegiate work. The plan to have all buildings, laboratory, clinical, hospitals and dispensaries, in one group and of easy access as well as the character of the men being selected to fill the various chairs give promise of a medical college of the first rank. Furthermore the location of a school of this character in St. Louis is sure to have a profound influence on medical education throughout the middle West and the South. Finally this generous provision for the development of medical education at Washington University is another encouraging indication that men of wealth are awakening to the necessity of endowments for medical education.

Prognosis in Appendicitis in Children.—The prognosis of appendicitis in children is influenced very materially by a number of factors; *e. g.*, age, difficulty in diagnosis, rapidity of its progress, delayed operation, and the lessened resistance to bacterial invasion on the part of very young children. Next to delay, age, perhaps more than any other factor, determines the outcome. The younger the child, the worse the prognosis. —J. M. T. Finney, in *Old Dominion Journal of Medicine and Surgery*.

Medical News

CALIFORNIA

Cooper College Graduates.—On May 5, the annual commencement exercises of Cooper Medical College, San Francisco, were held, and a class of seventeen was graduated. Dr. Henry Gibbons, Jr., dean of the college, introduced the president, Dr. Edward R. Taylor, who conferred the degrees.

Personal.—Dr. Charles V. Cross has been appointed president; Dr. Thurlow S. Miller, secretary, and Dr. Edwin C. Van Dyke, treasurer, of the reorganized Board of United States Examining Surgeons for San Francisco.——Dr. George L. Cole has been appointed a member of the board of health of Los Angeles, vice Dr. William J. Chambers, resigned.

Hospital Notes.—With the completion of the group of county hospital buildings, Los Angeles County will have expended $300,000 in this work. The completed buildings will contain an administration building, surgical ward, three medical wards, tuberculosis building, contagious ward, insane ward, nurses' quarters, superintendent's residence, etc. At present there are under construction an additional story to the lecture hall, a twenty-room additional building for nurses, and a new operating pavilion and a chapel.——The Mills heirs have given $1,000,000 for the endowment of St. Luke's Hospital, San Francisco.——Two hundred women of Oakland, Alameda and Berkeley, on May 2, began a ten-day campaign under the direction of the King's Daughters of California to raise $100,000 by popular subscription, with which to erect and equip a new building for the home for incurables.

ILLINOIS

Physician Goes to Prison.—Dr. William H. Miller, convicted of the murder of John Saylor, Crescent City, and sentenced to twelve years' imprisonment in the state penitentiary, was taken to Joliet, May 10, to begin his sentence.

Hospital Notes.—Work on the annex of St. Vincent's Hospital, Taylorville, began April 28. The annex will contain a maternity ward of five rooms, and will increase the capacity of the hospital to a total of seventy.——Rockford Hospital, in its report for the year ended January 1, announces that it closed with a deficit of about $1,500, most of which was made up of outstanding obligations of patients.

Chicago

Personal.—Dr. Henry R. Harrower, formerly editor of the *Medical Standard*, has severed his connection with that journal, and is now conducting a new periodical, the *American Journal of Physiologic Therapeutics*.

College Merger.—It is reported that a merger has been completed between the Bennett Medical College and the Illinois Medical College, the latter of which recently became the Medical Department of Loyola University. The new school will retain the name of the Bennett Medical College.

Chicago Tuberculosis Institute.—A new medical building has been opened at Edwards Sanatorium, Naperville, Ill., a department of the Chicago Tuberculosis Institute. The sanatorium at present consists of a forty-acre farm, with a general administration building, medical building, six open-air shacks and individual tents. The institution, at present, can accommodate sixty patients.

More About the Diploma Mill.—At the instance of the State Board of Health, Dr. Alexander Chittick, secretary of the "Chicago Medical University," E. J. Barnes, and N. O. Bourque, associated with Dr. Chittick in the "Crescent Medical University," were arrested, May 13, charged with fraudulent use of the mails. The defendants were taken before United States Commissioner Foote, their case was set for hearing May 23, and they were released on bail. It is claimed that these institutions, which are said to exist only on paper, sell diplomas in medicine, pharmacy, dentistry, osteopathy, etc., at prices ranging from $6 to $40.

Ricketts Memorial Service.—A memorial service for Dr. Howard Taylor Ricketts, assistant professor of pathology in the university, was held in the Leon Mandel Hall, University of Chicago, May 15. Dr. Henry Pratt Judson read a letter from the Bureau of Education of Mexico expressing appreciation of the work of Dr. Ricketts, and mentioning the honors conferred on him. He also made a brief address on the work of Dr. Ricketts, and the essential facts of his life and death were given by Dr. Russell M. Wilder, who was associated with Dr. Ricketts in his work in Mexico. Dr. Ludvig Hektoen delivered an address on the personality of Dr. Ricketts and the nature and value of the work. Prof. Charles Henderson of the University spoke on the humanitarian aspects of Dr. Ricketts' work and his death. The meeting was largely attended.

IOWA

Women's Medical Clinic.—A free daily clinic has been established by women physicians and club women of Des Moines in the Century Building, under the charge of women physicians of the city.

Society Meetings.—At the annual meeting of Tama County Medical Society, held in Toledo April 12, Dr. Walter J. McEvilly, Dysart, was elected president; Dr. Arthur A. Pace, Elberon, vice-president; Dr. William C. Wagner, Traer, secretary-treasurer, and Dr. Thomas L. Thomson, Toledo, delegate to the state society.——At the annual meeting of the Southeastern Linn Medical Association, held in Mount Vernon, April 12, Dr. Calvin G. Stookey, Mechanicsville, was elected president; Dr. Francis F. Ebersole, Mount Vernon, vice-president, and Dr. Kate Mason Hogle, Mount Vernon, secretary-treasurer.

KANSAS

Personal.—Dr. George L. A. Hamilton, Kansas City, has gone abroad.——Dr. G. D. Pendell has located in Wellington.——Dr. Harry A. Vincent, Perth, has gone to Florida for two months. ——Dr. Edwin T. Shelly, Atchison, is reported to be seriously ill with erysipelas.

State Society Meeting.—At the forty-fourth annual meeting of the Kansas Medical Society, held in Topeka, May 4-6, under the presidency of Dr. Oliver J. Furst, Peabody, the subject of whose address was "Public Knowledge of the Medical Profession," the following officers were elected: President, Dr. O. Portis Davis, Topeka; vice-presidents, Drs. Millard F. Jarrett, Fort Scott; George W. Jones, Lawrence, and John T. Axtell, Newton; secretary, Dr. Charles S. Huffman, Columbus (re-elected), and treasurer, Dr. Lewis H. Munn, Topeka.

KENTUCKY

Personal.—Dr. J. A. Boyd, Paducah, was shot in the arm and painfully wounded by Dr. Charles E. Purcell during an altercation recently.——Dr. John W. Pendley, Paducah, county physician of McCracken county, was stricken with cerebral hemorrhage while attending his sister at Spencer, S. D.

Wins Suit Against College.—In the suit brought by Dr. Harry A. Davidson against the Hospital College of Medicine, in which he sought the cancellation of notes amounting to $3,000, which he had pledged himself to pay, in consideration of receiving the chair of physiology and diseases of women, and an interest in the property of the school, the judge is said to have decided that the college must cancel the notes.

LOUISIANA

Permit for Hospital.—The city council of New Orleans has granted a permit to the Colored Baptist Sanitarium to operate a hospital at 122 South Howard street.

Asks Additonal Inspectors.—Dr. William T. O'Reilly of the city board of health of New Orleans, has asked for an appropriation of $12,800 for the employment of more inspectors and to enable the board to enforce the mosquito screen ordinance.

House of Delegates Meeting.—The annual meeting of the House of Delegates of the State Medical Society was held May 2. A new constitution and by-laws was adopted. Dr. John Callan, New Orleans, was elected president, and Dr. Joseph D. Martin, New Orleans, secretary.

State Medical Society Meeting.—The thirty-first annual meeting of the Louisiana State Medical Society was held in New Orleans, May 3-5. On the first day symposia on dysentery and uncinariasis were held. At the evening session pellagra was discussed. The following officers were elected: Dr. Edwin J. Graner, New Orleans, president; Drs. Allan C. Eustis, Abbeville, Homer Dupuy, New Orleans, and Samuel A. Ayo, Thibodeaux, vice-presidents; Dr. Joseph D. Martin, New Orleans, secretary; Dr. Charles C. Bass, New Orleans, treasurer (re-elected), and Dr. Isaac J. Newton, Monroe, councilor. The next meeting will be held in Shreveport.

MARYLAND

State Board of Health Election.—At the annual meeting of the State Board of Health, Dr. William H. Welch, Baltimore, and all the other officers were reelected. Dr. Marshall L. Price, secretary of the board, was selected as delegate to the American Medical Association.

Personal.—Dr. Frederick N. Nichols, Denton, has been appointed health officer of Caroline county.——Dr. Edward R. Trippe has been appointed health officer of Easton, and Dr. Philip L. Travers, physician to the county jail, Easton.——Dr. John E. Legge, Oakland, while cranking his automobile recently, fractured his arm.——Dr. Charles F. Goodell, Frederick, has been reelected health officer of Frederick county.——Dr. Elmer C. Kefauver has been elected town physician of Thurmont.——Drs. Lewis K. Woodward and Jesse S. Meyers have been elected members of the city council of Westminster.

Baltimore

Hospital News.—Through the efforts of the managers and auxiliary, $18,000 of the mortgage on the Johns Street Hospital for Women of Maryland have been paid off. An indebtedness of $22,000 still remains.

Dispensary Election.—At the annual meeting of the Baltimore Eastern Dispensary, May 9, Dr. Robert S. Kirk was elected superintendent for the twelfth time. Dr. John Roth was elected assistant superintendent, Dr. Daniel W. Cathell, vice-president, and Dr. Frank C. Bressler, a director.

Personal.—Lieutenant Howard E. Ashbury has been promoted to captain in the medical corps of the Maryland National Guard, and Drs. William P. Morrill and Lloyd P. Shippen have been appointed lieutenants and assistant surgeons.——Dr. Hugh H. Young has been elected secretary of the trustees of the new negro hospital for the indigent insane.

MASSACHUSETTS

Personal.—Dr. Frederick L. Hills, superintendent of the Massachusetts State Sanatorium, Rutland, has resigned to accept the superintendency of the Eastern Maine Insane Hospital, Bangor.——Dr. Francis X. Mahoney, Dorchester, has been appointed health commissioner of Boston.

State Society Meeting.—The one hundred and twenty-fifth annual meeting of the Massachusetts Medical Society will be held in Boston, June 7 and 8. The Shattuck Lecture will be delivered by Dr. Frederick H. Gerrish, Portland, Maine, on the "Crusade Against Syphilis and Gonorrhea," and the annual discourse will be delivered by Dr. John C. Munro, Boston.

MICHIGAN

Personal.—Dr. John L. Burkart, for a number of years acting assistant surgeon U. S. Army, with Philippine service, has opened an office in Big Rapids.——Dr. John A. Keho, Bay City, has been appointed a member of the board of health, vice Dr. William R. Ballard, resigned.——Dr. Clarence B. Wasson has been appointed health officer of Bellevue, vice Dr. Albert S. Wilson.——Dr. Perry M. Schurtz, retiring president of the board of health of Grand Rapids, was presented on May 5 with a diamond ring and set of cuff-links by the members of the board of health.——Dr. Earl V. McComb has been appointed health officer of Menominee.——Dr. A. Henri Cote has been elected city physician of Port Huron.——Dr. Victor C. Vaughan, dean of the Medical Department of the University of Michigan, was the guest of honor at a dinner of the University of Michigan Kansas City Club, May 2.

MISSOURI

Library for Medical Society.—The library of the late Dr. Jonathan E. Tefft, Springfield, has been presented by Mrs. Tefft to the Greene County Medical Society.

Southeastern Physicians Meet.—The Southeastern Missouri Medical Association met in Morehouse, May 3 and 4, and elected the following officers: President, Dr. Oba Haley, Fredericktown; recording secretary, Dr. William S. Hutton, Illmo; corresponding secretary, Dr. Thomas C. Allen, Bernie, and treasurer, Dr. William R. Goodykoontz, Caledonia.

Southwestern Physicians Elect.—At the annual meeting of the Southwestern Missouri Medical Association, held in Springfield, April 28 and 29, the following officers were elected: President, Dr. William J. Rabenau, Fordland; vice-presidents, Drs. Oscar N. Carter, Republic, and James E. Dewey, Springfield; secretary, Dr. Herbert S. Hill, Springfield, and treasurer, Dr. Lee Cox, Springfield, the two latter being reelected. Dr. James E. Loafman, Bolivar, delivered the oration on medicine, and Dr. Benjamin F. Fortner, Springfield, the oration on surgery.

St. Louis

Commendatory Resolutions.—The St. Louis Medical Society has adopted resolutions commending the council and house of delegates and mayor for the passage and signing of bills changing the management of the city eleemosynary institutions.

Hospital Merger.—The merger is announced of the Martha Parsons Hospital with the St. Louis Children's Hospital. The new institution will form part of the hospital group of Washington University Medical School, and will be housed in a new building on Kingshighway, valued at $125,000.

MONTANA

State Meeting.—The thirty-second annual meeting of the Montana State Medical Association was held in Hunter's Hot Springs, May 11 and 12, under the presidency of Dr. Thomas D. Tuttle, Helena. The officers elected were: President, Dr. William F. Cogswell, Livingston; vice-presidents, Drs. Thomas C. Witherspoon, Butte; Irvin, Great Falls, and Oscar M. Lanstrum, Helena; secretary, Dr. Herbert D. Kistler, Butte (reelected; treasurer, Dr. Creswell T. Pigot, Butte (reelected); delegate to the American Medical Association, Dr. Thomas D. Tuttle, Helena, and alternate, Dr. Thomas C. Witherspoon, Butte. Butte was selected as the next meeting-place.

NEW YORK

Is Christian Science Healing Forbidden?—An amendment to the New York state medical law which was rushed through the assembly May 5, is giving the Eddyites considerable alarm. The bill passed three years ago allowing only registered physicians to practice medicine had this exception, "This article shall not be construed to affect the practice of the religious tenets of any church." In the recent amendment introduced by Assemblyman Wilkie of Erie this exception is made to read, "This article shall not be construed to affect the practice of circumcision as the religious tenet of any church." The Eddyites are making strenuous efforts to stop this bill in the senate.

New York City

Import Measles.—The steamship *Carpathia* of the Cunard line recently arrived from the Mediterranean with 40 cases of well-developed measles among her 2,200 steerage passengers. Only the children in the steerage were affected. A few months ago a German steamer arrived with 130 cases of measles on board.

Personal.—The reception that was to have been given to Dr. John J. McPhee by the Canadian Society of New York has been indefinitely postponed on account of the death of King Edward.——Dr. Roswell Park, who has been ill with pneumonia in this city, has recovered sufficiently to return to his home in Buffalo.——Dr. and Mrs. George Woolsey and Dr. Howard S. Paine, Glens Falls, have gone to Europe.

Resolutions Regarding Dr. Goelet.—At the meeting of the Clinical Society of the New York School of Clinical Medicine, held May 3, resolutions were adopted regarding the death of Dr. Augustin H. Goelet, for more than twenty years a member of the faculty of the institution, setting forth the high qualities of Dr. Goelet, paying a last tribute to his memory, and extending to his bereaved family the sincere sympathy of the society.

Buffalo

Fronczak to Go to Paris.—Expenses not to exceed $350 were voted Health Commissioner Francis E. Fronczak by the board of aldermen to attend the International Congress on School Hygiene in Paris, August 2-7.

NORTH DAKOTA

State Society Meeting.—The annual meeting of the North Dakota Medical Association was held in Grand Forks, May 10 and 11, under the presidency of Dr. John E. Countryman, Grafton. The following officers were elected: President, Dr. Henry H. Healy, Grand Forks; vice-presidents, Drs. Clinton E. Spicer, Litchville, Alexander J. McCannel, Minot, and Murdock MacGregor, Fargo; secretary, Dr. Hezekiah J. Rowe, Casselton (reelected); treasurer, Dr. Frank J. King, St. Thomas, and councilors, Drs. Paul Sorkness, Fargo; William F. Sihler, Devils Lake, and Robert D. Campbell, Grand Forks.

OHIO

State Association Meeting.—The Ohio State Medical Association at its sixty-fifth annual meeting, held in Toledo, May 11-13, under the presidency of Dr. Walter H. Snyder, Toledo, who in his annual address, recommended greater participation of physicians in the general life of the community, education of the public in sanitation, and changes in the supervision of state hospitals for the insane. The following officers were elected: President, Dr. Arthur J. Skeel, Cleveland; vice-presidents, Drs. Samuel P. Fetter, Portsmouth; Edgar J. March, Canton; Anderson T. Spear, Newark, and James O. Starr, Pittsburg; member of the National Legislative Council, Dr. Benjamin R. McLellan, Xenia; councilor, Second District, Dr. Robert H. Grube, Xenia, and delegates to the American Medical Association, Drs. George M. Todd, Toledo; Benjamin H. Blair, Lebanon; Dana O. Weeks, Marion; B. Frank Barnes, Newark, and John W. Clemmer, Columbus. On the night of the eleventh, a one-act comedy written by Dr. Dan Millikin, Hamilton, was presented at Zenobia Theater before the association. This is commented on in the Correspondence Department in this issue. A resolution was adopted asking the state legislature to enact a law for the sterilization of habitual criminals. The next meeting of the association will be held in Cleveland. A report of the scientific proceedings will be commenced in THE JOURNAL next week.

OKLAHOMA

Graduation Exercises.—The annual commencement exercises of Epworth College of Medicine, Oklahoma City, were held May 12, when a class of 7 was graduated.

Public Drinking Cup Abolished.—Beginning May 1, the State Board of Health abolishes the public drinking cup. Violation is made a misdemeanor punishable by a fine of from $10 to $30, or by imprisonment for thirty days in jail, or both.

Faculty Election.—At the meeting of the Board of Regents of the University of Oklahoma School of Medicine, Norman, April 13, Dr. Charles S. Bobo, Norman, was elected dean, and Drs. L. W. Curley, B. F. McLaren and Walter L. Capshaw, Norman, were elected members of the faculty.

State Society Meeting.—The eighteenth annual session of the Oklahoma State Medical Association was held in Tulsa, May 10-12, under the presidency of Dr. Walter C. Bradford, Shawnee. The following officers were elected: Dr. David A. Myers, Lawton, president; Drs. Charles L. Reeder, Tulsa, H. Marion Williams, Wellston, and James L. Shuler, Durant, vice-presidents; Dr. Claude A. Thompson, Muskogee, secretary (reelected), and Drs. W. E. Wright, Tulsa, and Charles R. Hume, Anadarko, delegates to the American Medical Association.

PENNSYLVANIA

Hospital Annex Opened.—The Phoenixville Hospital opened its new $25,000 annex, April 30, thus increasing the hospital's capacity to 75 patients. The annex was made possible by the gift of $12,000 by the late Joseph Anderson, Toughkenamon.

Milk Dealer Fined.—O. H. Walters, a milk dealer of Lower Pottsgrove, was fined $75 and costs May 13, for violating the state quarantine laws during the prevalence of scarlet fever in his house. It was charged that 16 cases of the disease resulted because he sold milk before the quarantine was lifted.

Antispitting Sign to be Used.—Pennsylvania's recommendation, made through her Health Commissioner, Dr. Samuel G. Dixon, for a uniform antispitting sign to be used in railroad coaches passing through different states, was adopted April 29, by the Conference of State and Provincial Boards of Health at Washington, D. C.

Philadelphia

Addition to Philadelphia Hospital.—The first of the new additions to the equipment of the Philadelphia General Hospital, the annex to the Nurses' Training School, was opened May 12. It is of brick and has accommodation for 40 nurses.

Chair of Surgery Endowed at Jefferson.—The trustees of Jefferson Medical College announced, May 11, a gift of $60,000 from Mrs. Maria Gross Horwitz, daughter of the late Professor Samuel D. Gross, to endow the "Samuel D. Gross Chair of Surgery."

Additions to University.—May 12, ground was broken for a group of laboratory buildings for the University Hospital, on the university campus, south side of Pine street, east of Thirty-seventh street. The total cost will be $37,000. The plans provide for a series of one-story buildings.

Fire in Laboratory.—A fire in the chemical laboratory of the Medico-Chirurgical College caused great damage in three-quarters of an hour and frightened many patients. About $50,000 worth of apparatus was ruined by fire and water and the total damage will amount to more than $75,000.

Gross Prize Awarded.—The Samuel D. Gross Prize of the Philadelphia Academy of Surgery for 1910, amounting to $1,500, has been awarded to Dr. Astley Paston Cooper Ashhurst of Philadelphia for his essay entitled "An Anatomic and Surgical Study of Fractures of the Lower End of the Humerus."

Tribute to Dr. Tyson.—As a farewell tribute to Dr. James Tyson, professor of medicine at the University of Pennsylvania, 300 students of the medical department gathered in his lecture room on May 13, and presented him with a silver loving-cup and large silver platter, gifts of the members of the two upper classes. It was the occasion of Dr. Tyson's last lecture and instead of an everyday class room he found the place decorated with red and blue bunting.

Personal.—Dr. Albert Magnus-Levy, of Berlin, Germany, was the guest of honor at a banquet at the Bellevue-Stratford, May 13, following his address before the College of Physicians.

Dr. George E. de Schweinitz was the host of the occasion and covers were laid for twenty-eight guests.——Dr. R. Tait McKenzie has been appointed a representative of the United States at the Third International Congress on Physical Education to be held in Brussels, Belgium, from August 10 to 13.——Drs. F. Hirst Maier, Alfred Heineberg and P. Brooke Bland have been appointed associates in gynecology in Jefferson Medical College.

Crusade Against Doped Medicines.—Christopher Koch, vice-president of the State Pharmaceutical Board, announced, May 2, that the future activities of that board would be directed against "patent medicines" with dope in them. Soothing syrups will be one of the leading points of attack, and samples have already been sent to Professor Charles H. LeWall, chemist for the board, to be analyzed. To the general use of these soothing syrups (among babies) Dr. Koch attributes the craving for cocain and other drugs among adults, who have been indulged with these syrups during infancy. Samuel M. Clement, Jr., counsel for the board, says that the traffic in cocain in this city has now been practically annihilated and that the board would now turn its efforts to obtain federal regulation of the sale of cocain, morphin and other ruinous drugs. Five more cocain prisoners were arraigned before Magistrate Beaton in City Hall, May 2.

Baby-Saving Campaign.—To concentrate the charitable forces of the city into one big child-saving campaign, a conference of nearly 200 social workers was held in the mayor's office at City Hall on May 13. A movement was started by Dr. Jesse Burke, of the Bureau of Municipal Research, to form a central committee to report the scope, limits and activity of every charity in the city. This committee will form the nucleus of a centralized registration bureau leading to the formation of a municipal bureau of child hygiene. It was shown that lack of cooperation among the various charitable organizations resulted in the city's deserving poor not receiving the benefit of funds given for their relief and of the societies being imposed on. A little over a year ago there was organized an alliance for the care of babies under the auspices of the Department of Public Health and Charities, Board of Education, Mothers' Congress, Home and School League and allied societies, for the purpose of instituting lectures, and giving practical instruction and demonstration, by means of the lecture rooms in the schoolhouses, instituting milk depots, etc., but unfortunately public education through the newspapers did not reach the particular class of people desired. The circulars left at the home frequently remained unread and the lectures reached only comparatively few. Milk dispensaries cannot be attended by the mother who has many children. The keynote of the proposition lies in the visitation of the home by trained workers, and one object of the present crusade is the part to be played by the Bureau of Municipal Research, under the guidance of Dr. Burks, who has volunteered to supply a selected section of the city with a corps of trained nurses for the purpose of home instruction.

TENNESSEE

State Board Election.—At a called meeting of the State Board of Health, May 1, Dr. Thomas E. Abernathy, Chattanooga, was elected president to fill the vacancy caused by the resignation of Dr. Heber Jones, Memphis, who had been a member of the State Health Department for 23 years. Dr. Louis Leroy, Memphis, was elected vice-president; Dr. William Litterer, Nashville, state bacteriologist; Dr. Olin West, Nashville, assistant secretary of the board in charge of the eradication of the hookworm disease, and Dr. Rufus E. Fort, Nashville, delegate to the American Medical Association.

Colleges Close Session.—The graduating exercises of the Medical Department of Vanderbilt University were held May 2, when a class of thirty-nine received diplomas from Chancellor J. H. Kirkland. The faculty address was delivered by Dr. William Litterer.——The University of Nashville Tennessee Medical Department held its annual commencement exercises May 2, when a class of sixty-five was graduated. Ex-Governor R. M. Cunningham, Alabama, delivered the annual address; Dr. Hazel Padgett, the faculty address, and President Brown Ayres of the University of Tennessee outlined the reasons prompting the combination of the two universities and its purpose for the future. Degrees were conferred by Prof. J. I. D. Hines on the graduates of the University of Nashville, and by Prof. Brown Ayres on the University of Tennessee.——The commencement exercises of the Medical School of the University of Chattanooga were held May 2, when a class of eighteen was graduated. The faculty address was delivered by Dr. J. S. B. Woolford. Hon. H. H. Ingersoll, Knoxville, delivered the commencement address, and Professor Race conferred the degrees.——Memphis Hospital Medical College graduated a class of 101, April 30. The commencement address was delivered by Hon. Earl Brewer of Clarksdale, Miss., Hon. W. H. Carroll, president of the board of directors, conferred the degrees, and Dr. William B. Rogers, dean of the college, delivered the diplomas to the graduates.——The College of Physicians and Surgeons, Memphis, held its annual graduating exercises May 2. Prof. Thomas P. Bailey delivered the commencement address, and degrees were conferred on a class of seventeen by Dr. Richard B. Maury, chancellor of the university.——A class of twenty was graduated from the Lincoln Memorial Medical College, Knoxville, May 4. Rev. J. F. Spence, LL.D., vice-president of the Medical Department, conferred the degrees.——Meharry Medical College, Nashville, graduated a class of fifty-five on April 14. The address to the graduates was delivered by Rev. R. E. Jones, D.D., New Orleans. Ground was broken for the George W. Hubbard Hospital, April 13. One wing of this structure is to be built at present, will accommodate about forty patients, and will cost about $15,000.

TEXAS

Personal.—Drs. Edwin P. Becton, Will Cantrell, Charles T. Kennedy, Julius A. Smith, D. Richard Waddle and John W. Swindell have been elected members of the board of health of Greenville.——Dr. Gustave A. Weidemyer has been elected city physician of Taylor.

Graduation Exercises.—A class of twenty-eight received diplomas at the annual commencement exercises of the Medical Department of Fort Worth University, May 3. Dr. Charles W. Stiles, United States Public Health and Marine-Hospital Service, delivered the commencement address.——Baylor University, Dallas, held its commencement exercises April 26, graduating a class of ten. Dr. Edward H. Carey presented the medical class to President Brooks, who conferred the degrees.

State Physicians Meet.—The forty-second annual meeting of the State Medical Association of Texas was held in Dallas, May 10-12, under the presidency of Dr. Witten B. Russ, San Antonio, and the following officers were elected: President, Dr. John T. Moore, Houston; vice-presidents, Drs. Allen D. McReynolds, Stamford, and Washington A. Harper, Austin; secretary and editor of the state medical journal, Dr. Holman Taylor, Fort Worth; treasurer, Dr. Charles A. Smith, Texarkana; councilors, Third District, Dr. David R. Fly, Amarillo; Fifth District, Dr. William A. King, San Antonio; Sixth District, Dr. Henry J. Hamilton, Laredo; Ninth District, Dr. James A. Hill, Houston; Twelfth District, Dr. Arthur C. Scott, Temple; Fifteenth District, Dr. Levi Y. Turner, Daingerfield; and delegates to the American Medical Association, Drs. Witten B. Russ, San Antonio, and Turner, Dallas. The association adopted resolutions favoring the Owen bill to create a national department of health.

VIRGINIA

Commencement.—The Medical College of Virginia held its annual commencement exercises at the Academy of Medicine, Richmond, May 18. President Lyon C. Tyler of William and Mary College delivered the commencement address. A class of forty-six was graduated.

Personal.—Dr. Alick T. Smith has succeeded Dr. Thomas G. Pretlow as city physician of Richmond.——Dr. Albert S. Priddy, formerly superintendent of the Southwestern State Hospital for the Insane, Marion, has been placed in charge of the construction of the state epileptic hospital, Lynchburg, for which an appropriation of $60,000 was made by the last legislature.——Dr. George E. Wiley has succeeded Dr. William R. Rogers, resigned, as city physician of Bristol.——Dr. James C. Bardin, Charlottesville, has accepted the chair of Portuguese in the department of romance languages in the University of Virginia. He will sail for Brazil June 5.

WASHINGTON

Antituberculosis League Formed.—Whatcom County Antituberculosis League was organized at Bellingham, April 28. Dr. Edward C. Ruge was elected president, and Drs. Orville E. Beebe, Everson, and Spencer S. Howe, Lynden, were elected directors.

Personal.—Dr. Charles L. Dixon has been appointed health officer of Renton.——Dr. Grant Calhoun has been appointed chief of the surgical staff, and Dr. Samuel J. Holmes chief of the medical staff of the Seattle City Hospital.——Dr. Elmer M. Brown has been appointed health commissioner of Tacoma.

Building for Antituberculosis League.—A building is to be erected by Mr. Horace C. Henry, Seattle, recently elected president of King County Antituberculosis League, for the use of the organization. The building will contain a reception room, retiring rooms, an office and general committee rooms. Mr.

Henry has also given forty acres of land north of Seattle for a site for a sanatorium, and has made an unconditional promise to build a sanatorium on this site at an expense of from $25,000 to $30,000.

WEST VIRGINIA

Medical Society Library.—The Ohio County Medical Society, Wheeling, has removed its medical library from the city hospital to its leased rooms on the sixth floor of the new Board of Trade Building.

Will Build Sanatorium.—The Ohio County Antituberculosis League, at a meeting recently held in Wheeling, decided to erect a sanatorium to be known as the Hospital for Curable Tuberculosis. The institution will be incorporated with a capital of $50,000. Decision as to the site has not yet been made.

Society Election.—Monongalia County Medical Society, at its annual meeting, held in Morgantown, April 12, elected Dr. Richard H. Edmondson, president; Dr. John N. Simpson, vice-president; Dr. Francisco T. Haught, secretary; Dr. William C. Moser, treasurer, and Dr. Robert W. Fisher, delegate to the state association, all of Morgantown.

WISCONSIN

New Health Commissioner for Milwaukee.—Dr. William Colby Rucker, of the United States Public Health and Marine-Hospital Service, has been granted a leave of absence for one year to accept the position of health commissioner of Milwaukee.

Personal.—Dr. William H. Brown, Madison, has been made assistant professor of pathology in the University of Wisconsin, Madison, and Dr. W. J. Week, assistant professor of physiology.——Dr. George E. Thompson has succeeded Dr. F. B. Lansdowne as city physician of Kenosha.——The Madison General Hospital has appointed a medical staff with three divisions. The medical division is in charge of Dr. Louis R. Head; the surgical division is in charge of Dr. Reginald H. Jackson, and the laboratory division in charge of Dr. Charles H. Bunting.——Drs. George W. Nott and Frank W. Pope have declined to serve as members of the Racine Board of Health.——Dr. J. B. Richards has been appointed health officer of Janesville. ——At the annual election of the Kappa Chapter of the Alpha Kappa Kappa Medical Fraternity in Milwaukee recently, Dr. Daniel Hopkinson was elected primarius, and Dr. Fred C. Leifert, corresponding secretary.

GENERAL NEWS AND COMMENT

Meeting of Climatologists.—At the twenty-seventh annual meeting of the American Climatological Association, held in Washington, May 3-5, the following officers were elected: Dr. John Winters Brannan, New York City, president; Drs. Will Howard Swan, Colorado Springs, and John H. Lowman, Cleveland, vice-presidents; and Dr. Guy Hinsdale, Hot Springs, Va., secretary-treasurer. The next meeting will be held in Montreal in June, 1911.

Instructors in Children's Diseases to Meet.—The fourth annual meeting of the Association of Teachers of Diseases of Children will be held at the Southern Hotel, St. Louis, June 6, under the presidency of Dr. Alfred C. Cotton, Chicago. The morning session will be devoted to business, the reports of committees, and a symposium on the teaching of pediatrics. At the afternoon session, a discussion of the papers read at the symposium will take place and papers will be read, and interesting cases will be presented by the St. Louis members of the association.

Medical Museum Directors Meeting.—At the annual meeting of the International Association of Medical Museums, held in Washington, May 3 and 4, the following officers were elected: President, Dr. Alfred S. Warthin, University of Michigan, Ann Arbor; vice-presidents, Prof. G. Sims Woodhead, Cambridge, Eng.; Dr. Edmond Souchon, New Orleans, and Prof. Ludvig Aschoff, Freiburg, Germany; secretary-treasurer, Dr. Maude E. Abbott, McGill University, Montreal; assistant secretary, Dr. H. W. Francis, McGill University, Montreal; and councilors, Drs. William G. MacCallum, Columbia University, New York City; Edwin R. LeCount, University of Chicago; Frank F. Wesbrook, University of Minnesota, Minneapolis; Daniel S. Lamb, Army Medical Museum, Washington; O. S. Woolley, University of Cincinnati; William Ophuls, San Francisco, and George H. Whipple, Baltimore.

Experts in Tropical Medicine to Meet.—The American Society of Tropical Medicine will hold its seventh annual meeting at the Medical School of St. Louis University, June 11, under the presidency of Col. William C. Gorgas, Medical Corps U. S. Army, Ancon, C. Z. The general discussion of hemoglobinuric fever will be opened by Dr. Allen J. Smith, Philadelphia, after the reading of papers by Drs. Charles F. Craig, Washington; George H. Whipple, Baltimore; William H. Deadrick, Helena, Ark.; Walter Brem, Cristobal, C. Z., and James Ewing, New York City. Among other interesting topics for papers and discussions will be filariasis, elephantiasis, uncinariasis, intestinal amebiasis, hookworm, and pellagra.

Adulterated Macaroni Seized and Condemned.—After a trial in the United States District Court at Chicago before Judge Landis May 16, five car-loads of macaroni manufactured by Chicago and St. Louis firms, which had been seized on account of adulteration under the Food and Drugs Act, were condemned and ordered destroyed. The testimony of the government expert chemists, including Dr. H. W. Wiley, showed that the macaroni had been colored by a coal tar dye known as Martius yellow, made by the action of nitric acid on alphanaphtylamin, and which has been pronounced poisonous by all the authorities. Prof. Albert Matthews of the physiologic laboratory of Chicago University, by experiments on frogs, guinea-pigs and dogs with some of the drug obtained from this macaroni, found that it was deadly in small quantities. The defense claimed, but did not attempt to show by witnesses, that the dye was purchased from a firm who guaranteed to them that it was not poisonous and that it was one of the coloring matters permitted by the regulations of the Department of Agriculture.

The Gnat the Conveyor of Pellagra?—A press dispatch from London reports that Dr. Sambon announces from Rome that pellagra has been found to be caused by the bite of a species of midge or black fly and that it thus falls into the class of tropical or semitropical diseases of insect conveyance. Dr. L. W. Sambon, lecturer at the London School of Tropical Diseases and the Royal Institute of Public Health, London, is at present a member of the field committee investigating pellagra in Italy. If this announcement is verified it affords a possible explanation of the sudden occurrence of pellagra in this country, or at least its more general recognition in recent years. It has been a puzzle to some American alienists why they did not see such cases before. Some of them at least were more or less familiar with the disease from descriptions in Italian and other foreign literature and must have been on the lookout for it in the asylum population of the corn-raising districts. The assumption has been made by some students of the recent outbreaks that cases have existed unrecognized for a number of years in such parts of the country. This may be true but it is hard to see how so marked a disorder could have passed unnoticed, at least in its typical form, for any length of time. Dr. Sambon's announcement opens up a new lead for American investigators of the subject.

New Medical Buildings at the University of Minnesota.—It is reported that work has already been started at the University of Minnesota toward the erection on the new extension of the university campus of certain buildings which will constitute the new medical group. The buildings for which funds are available are the Elliott Hospital, Millard Hall and the Institute of Anatomy. The construction of the hospital has been already begun and it is expected that work on the other two buildings will follow within the next few weeks. The hospital will provide for 130 free beds, which will be available solely for patients from all over the state without financial resources. All the clinical material will be used for teaching purposes. The building will be of strictly modern construction and will cost $165,000, exclusive of equipment. Of this sum, $125,000 came from Mr. Walter J. Trask through a bequest from the late Dr. A. F. Elliott and $40,000 was appropriated by the last state legislature. Each of the other buildings is planned ultimately to cost $400,000, but only half of each will be completed at this time. The new Millard Hall will be occupied by the offices of the dean and secretary of the faculty, by record, faculty and committee rooms, and by the several laboratories and offices of the departments of medicine, surgery, obstetrics, physiology and pharmacology. The Institute of Anatomy will contain the laboratories of anatomy, histology and embryology and provide also for laboratories in operative and experimental surgery and surgical anatomy. These buildings will not only provide a hospital and the much needed larger quarters for the college of medicine, but they will constitute the beginning of a complete and compact group of strictly modern medical buildings. The erection of these new buildings is another step in the remarkable progress made during the past few years in medical education in Minnesota.

Discuss Measures for Epileptics.—The ninth annual meeting of the National Association for the Study of Epileptics was held in Baltimore, May 7. Dr. Arthur P. Herring, Baltimore, discussed the situation in Maryland, showing that a very large

class of epileptics existed for whom under present conditions no adequate provision was made, and advocating special institutions for epileptics. Mr. Franklin Kirkbride, New York City, told about Letchworth Village now the new institution at West Haverstraw. The scope of the institution appears to be rather for the lower mental grades and feeble-minded rather than for the better class of epileptics. Reports from the various state institutions showed that Ohio had 1,412 in its state institution; New York, 1,339; Massachusetts, 900; Kansas, about 400; Texas, 375; New Jersey, 312; Pennsylvania, 138; Missouri, 108; and Indiana about 100. Connecticut and Virginia have established epileptic colonies, and in a few other states there are divisions in other institutions especially for epileptic classes. The president's address was on "The Utility of Organization." He urged that the efforts of the association should be to unite lofty ideals, common sense, well-directed energy, and well-organized effort, as these are the essentials to bring fruition. The following officers were elected: President, Dr. Middleton M. Perry, Parsons, Kan.; vice-presidents, Dr. William T. Shanahan, Sonyea, N. Y., and Charles H. Grasty, Baltimore; secretary-treasurer, Dr. James F. Munson, Sonyea, N. Y.; and editor of the transactions, Dr. William P. Spratling, Baltimore. On all sides, the necessity of more careful study of individual epilepsy was advocated. The time has passed when an individual who has "fits" is called at once an epileptic, and is consigned to the incurable class. It was emphasized that a most careful study of every case, by every method and from every standpoint is necessary since it is becoming more clearly understood that we have to deal not with "epilepsy" but with "epilepsies." Diverse factors in the individual cases must be discovered.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, April 30, 1910.

Prevalence of Adenoids

Adenoids are exceedingly prevalent in the children of Great Britain and their interference with education constitutes a problem in the schools. Mr. Macleod Yearsley of the Royal Ear Hospital has concluded an investigation into the occurrence of adenoids in three of the London elementary schools. He finds that about 37 per cent. of the children have adenoids and that between 72 and 76 per cent. of these have also enlarged tonsils. On an average 31.2 per cent. of these children are mouth-breathers, complete or partial, but hypertrophy of the faucial tonsils may give rise to mouth breathing in the absence of adenoids. Sex appears to have no influence on the incidence of adenoids, and they are most common about the age of 8 and next about the age of 12. True aprosexia occurs in about 4.7 per cent. of adenoid cases and is more frequent in girls and is associated with a marked degree of adenoids. Aprosexia is often confounded with dulness due to defective hearing. The so-called adenoid facies is uncommon except in association with a marked degree of adenoids. The association of an abnormally high palate with adenoids is rather due to peculiarities of cranial formation than to extrauterine influences of nasal stenosis, and if there is any relation between a high, narrow palate and adenoids it is possible that the palate shape is rather a cause of adenoids than *vice versa*. The presence of adenoids has more to do with the presence of carious teeth than have mouth-breathing and palate shape, and this is probably due to the increased tendency to oral sepsis in children with adenoids. Irregularity of the upper incisors is less a result of adenoids than palate shape. The percentage of ear complications in adenoid children is about 10.8 and adenoids are probably by far the most important factor in the etiology of ear diseases in childhood.

Scotland's Low Birth-Rate

The low birth-rate of England has from time to time been a subject in previous letters to THE JOURNAL. The fifty-fifth annual report on births, deaths and marriages in Scotland shows that a similar decline has taken place in that country. For 1909, the birth-rate is 26.3 per thousand, the marriage-rate 6.17, and the death-rate 15.2. All these rates are the lowest recorded in the 55 years covered by the registrar-general's returns. The marriage-rate is 0.14 less than the previous lowest record which occurred in 1886. The death-rate is 0.64 less than that of 1905, previously the lowest recorded. The Vaccination Act of 1907, which made a conscientious objection of parents to vaccination a valid excuse for non-vaccination is producing similar evil effect to that in England (previously described in THE JOURNAL). The number of children unvaccinated is now 20,000 more than before the passing of the act.

Plague in India

The Indian plague returns for the week ending March 19 show a great increase of the number of cases in mortality in the Punjab in which the number is 10,787. The number for the whole of India is 27,642. The incidence of the disease from year to year varies in a very irregular fashion. Thus in 1905 the number of deaths was 126,000; in 1906 the number dropped to less than half of this; but in 1907 it again rose to 83,600. In 1908-09 the disease died down except in few localities and the number of deaths was less than 16,000. Inoculation against plague is still regarded with great distrust by the natives and not more than 5,000 or 6,000 submit themselves annually to prophylactic inoculation.

Hospital Bed Endowed by the Emperor of Japan

At the Seamen's Hospital, Greenwich, the Japanese ambassador unveiled a tablet over a bed which had been endowed by the Emperor of Japan. He expressed the emperor's gratitude that such an institution as the Seamen's Hospital existed where so much care and attention were bestowed on Japanese seamen admitted to its wards.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, May 6, 1910.

Conference for the Welfare of the Blind

A conference for the welfare of the blind, organized by the cooperation of the Syndicat général des oculistes français, the Institution nationale des jeunes aveugles, the Hospice national des Quinze-Vingts, the Association Valentin-Haüy, etc., has just been held in Paris. M. Mirman, director of the public charities and hygiene, presented to the conference a report on the law of 1905 and relief for the blind. He proposed certain resolutions demanding especially that a campaign of propaganda be undertaken by means of circulars, pamphlets and the public press, to induce the municipal councils to grant assistance to every young blind person who is capable of being professionally educated—this assistance not to take the form of a monthly allowance, but of maintenance at a special professional school, or, in default of such school, with a person who should undertake to teach a trade to the blind pupil; that in each important center private initiative should found a residential institution, where in exchange for an amount equal to the monthly allowance which the blind receive in accordance with the law of 1905, blind persons capable of working or those whose wives and daughters are compelled to work outside, might be lodged and cared for under good hygienic conditions. Dr. Valude, physician of the ophthalmologic clinic of the Hospice des Quinze-Vingts, took up the especially interesting question of blindness caused by ophthalmia neonatorum and the means of combating it. He spoke of the circular that M. Clemenceau addressed last year to the prefects on this subject (THE JOURNAL, May 22, 1909, lii, 1676). Dr. Valude advocates making the Credé method of using nitrate of silver immediately after the birth of a child, an important compulsory part in the instruction of midwives. He also recommends that midwives be obliged, under penalty, not only to declare confirmed ophthalmia, but to have it immediately cared for by a physician; and that the public be informed of the dangers of ophthalmia by concise information distributed to parents, by notices posted up in the mayors' offices and in schools, by lectures given in neighborhoods where working people live; and that medical students be compelled to pass examinations on the elementary questions of ophthalmology.

Zambaco Pasha Prize

Dr. Zambaco Pasha of Constantinople, associate member of the Académie de Médecine and corresponding member of the Académie des Sciences, has just endowed the Société de médecine et d'hygiène tropicales with three prizes, one of $200 (1,000 francs) and two of $100 (500 francs) for the three best memoirs on the question of the contagiousness of leprosy. The works are to be the result of personal research and of scientific observations made at first hand. The commission which is to award the prizes has just decided that the candidates shall discuss the following questions: 1. Is leprosy hereditary? 2. Is leprosy contagious among human beings? 3. Is leprosy transmissible to animals? If there is occasion, means of control, such as microscopic preparations and photographs, should be appended to the memoirs. The papers should be written in French, should be addressed to the Secrétaire général de la société de médecine et d'hygiène tropicales at 18 rue de Grenelle, Paris, and should reach him before April 1, 1911.

Franco-Belgian Convention for the Declaration of Epidemic Diseases

The French and Belgian governments, by a series of agreements concluded since 1895, the last of which was signed recently, have decided on reciprocal notification of epidemic diseases by the authorities in the frontier zones. The diseases which affect human beings which are to be reported in these regions are Asiatic cholera, bubonic plague, typhus, typhoid fever, smallpox, scarlatina, diphtheria, measles, dysentery, contagious ophthalmia, puerperal fever, cerebrospinal meningitis and all epidemic and transmissible diseases. The diseases affecting animals which are to be reported are contagious typhus, contagious pleuropneumonia, aphthous stomatitis, glanders, farcy, sheep-rot, scabies and swine plague. Notification is to be given on the appearance of the first cases, whether confirmed or suspected.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, April 28, 1910.

Bill to Regulate Compulsory Insurance

The bill modifying the present legislation on compulsory insurance of wage-earners is having its first reading in the Reichstag (every bill must be considered three times in the parliament). It appears that the various parties are more favorable to the wishes of the medical profession than was to be expected. The repeated communications of physicians have plainly not been without effect on the legislators, and especially influential in this line was the extraordinary meeting of the medical association, the Aerztetag, April 17 in Berlin, at which about 24,000 physicians were represented by delegates. With a few exceptions the delegates were unanimous in the opinion that the new bill, in spite of some important improvements, is not calculated to secure the harmony in the Krankenkassen relations which is desirable in the interests of the social legislation and the economic interests of the medical profession, and that the demands voted at the regular Aerztetag, at Lübeck, must be maintained. Especially the free choice of physician must be legally guaranteed. In fact, at the recent discussions in the Reichstag, a representative of the social democratic party announced himself as an adherent to the principle of the free choice of physician, and thus it is to be hoped that this party, which includes the principal opponents in the Krankenkassen to the demands of the medical profession, will vote favorably to these demands. The government has indeed made provision for the management of the medical affairs of the Krankenkassen in both ways, by the so-called fixed physicians and by free choice. However, it will without doubt yield if the Reichstag votes differently. Possibly the government was favorably influenced by the petition presented by the medical faculties of practically all the German universities on the suggestion of the editor of the *Deutsche medizinische Wochenschrift*. In this petition 150 professors supported the demands of the practitioners for the improvement of the imperial insurance law and distinctly called attention to the dangers which threaten the independence of the medical profession if the bill in its present form shall be enacted into law.

Centennial of the Berlin Medical University Policlinic

On May 2 our university policlinic for internal medicine will celebrate its centennial. It was founded by Hufeland, who delivered the first lecture in it. His successor in 1833 was his son-in-law, Professor Osann, who was a teacher of pharmacology in the university. Then followed, in 1842, the renowned neurologist, Professor Romberg (the discoverer of the so-called Romberg sign in tabes). He was followed, in 1865, by the distinguished psychiatrist, Professor Greisinger, who continued in office only two years because he was too much in demand at the newly-founded clinic for mental and nervous diseases at the Charité. Prof. J. Mayer, who was not distinguished in science but a good practitioner and teacher, succeeded him. After the death of Mayer, in 1887, Professor Senator became the director of the institute, and has retained this post for twenty-three years, but resigns now with the end of the summer semester. Although in the early years on the average only 700 patients were treated in the policlinic, their number of late years has risen to 10,000. In the beginning the patients were treated not only in the clinic but also by assistants and students in their own homes, but for a number of years this part of the policlinic work, so important for instruction, has been discontinued on account of lack of room. The number of students attending the policlinic is still relatively large, as Professor Senator, in spite of his advanced age, shows still a remarkable activity in teaching. No decision has been made as to his successor

Pharmacology

[CONTRIBUTIONS FROM THE CHEMICAL LABORATORY OF THE AMERICAN MEDICAL ASSOCIATION.]

NOITOL AND ANADOL

W. A. Puckner and L. E. Warren

NOITOL

THE JOURNAL received an inquiry concerning the composition of Noitol, a preparation which is being advertised to the medical profession as a "specific" for the cure of eczema and certain other cutaneous diseases. The preparation is manufactured by the Wheeler Chemical Works, Chicago. Trade packages of Noitol were purchased and examined in the Association laboratory. On the label of the package, Noitol—an inversion of the word "lotion"—is described as follows:

NOITOL

(DR. BRADBURY'S ECZEMA LOTION.)

For External Application Only!

Our Most Popular Specialty.

A specific for the cure of Eczema, Scrofulous and Syphilitic Eruptions, Lupus, Salt Rheum, Tetter, Itch. This remedy is composed of valuable Oils, combined with Vegetable and Mineral Acids in such proportions as cause a rapid and permanent cure of the above complaints.

Noitol is a clear, nearly colorless, acid solution, the greater portion of which is water. Its specific gravity is 1.0097 at 25 C.

Qualitative tests demonstrated the presence of a chlorid, a nitrate, a mercuric salt, free acid and glycerin. No "oils" or "vegetable acids" could be found.

The analysis[1] of the preparation indicated that its composition is essentially as follows:

Mercuric Chlorid	0.0463 gm. in 100 c.c.
Mercuric Nitrate	0.0450 gm. in 100 c.c.
Glycerin	1.3021 gm. in 100 c.c.
Nitric Acid	1.0265 gm. in 100 c.c.
Water (by difference.)	98.5545 gm. in 100 c.c.

From the above it appears that Noitol is simply a weak, acid solution of mercury salts—the total being approximately equivalent to a 1 to 1,000 bichlorid of mercury solution—exploited under a meaningless name. It is but one more example of the old, old story of a well-known remedy being sold at a high price under a name which is in no way indicative of its composition, and under claims which are absurdly false.

The price of the mixture is $2.00 a pint; the estimated cost, exclusive of the container, is about 6 cents a gallon, or, put another way: the price of a pint bottle, it is estimated, would make a barrel (31 gallons) of the nostrum. The incorrect statement made concerning its components, the unwarranted therapeutic claims made for it, and the exorbitant price easily place Noitol in the front rank among the "patent medicine" frauds. Yet it is advertised to physicians as an ethical proprietary and is evidently being prescribed by them.

ANADOL

In the circular matter accompanying the trade package of the preparation, "Noitol," described above, a preparation called "Anadol" is described. Anadol is claimed to be an analgesic and antipyretic. In the descriptive circular there is no information concerning the composition of the preparation but from the general therapeutic description the physician might easily be led to believe that "Anadol" is a distinct chemical substance.

To reduce temperature the physician is advised to push the administration of Anadol in 10 grain doses until the febrile condition is under control or until a maximum of 70 grains of the preparation has been ingested. The circular further states:

". . . in this lies the special value of ANADOL; there are no annoying by-effects; the stomach bears the remedy well and neither circulation, respiration, nor the nerve centers show the least disturbance."

1. The details of the analysis will be sent on receipt of a stamped, addressed envelope; they will also be published in the annual report of the Chemical Laboratory.

As no evidence could be obtained concerning the composition of Anadol and, as the preparation is being brought to the attention of physicians by means of circulars in connection with the distribution of Noitol, it seemed worth while to take up its examination in the Association laboratory. Accordingly a trade package of the material which had passed into interstate commerce was purchased.

Qualitative tests demonstrated the presence of sodium, a carbonate, caffein and acetanilid, the latter in considerable quantities. Analysis[2] indicated that the composition of the specimen examined is essentially as follows:

Acetanilid	79 per cent.
Caffein	1 per cent.
Sodium bicarbonate	20 per cent.

Since, according to the circular, it is permissible to prescribe 70 grains of this preparation within 2½ hours, a patient thus treated would receive no less than 55 grains of acetanilid! In view of the numerous cases of poisoning due to the misuse of acetanilid ("The Harmful Effects of Acetanilid, Antipyrin and Phenacetin," U. S. Dept. Agric., Bur. Chem., Bull. No. 126) the physician should be apprised of the composition of Anadol.

EDITORIAL NOTE: The chemical investigations reported above emphasize once more the need of such an institution as the Association's laboratory and again demonstrate the value of its work. At first sight it seems disheartening to find that physicians are so easily humbugged. Yet when it is remembered that it is impracticable for physicians either to analyze such products themselves or to go to the expense of having chemists do it for them, it is evident that the fault lies not so much with the physician as with the conditions that makes the exploitations of such frauds possible. It is on the public that the burden ultimately falls, for it is the layman who has to pay two dollars for a few cents worth of medicine. But—and this is far more serious—that the physician should be urged to dose his patient with an insidiously dangerous drug to a point far beyond the limits of safety, is little less than criminal. Yet so long as unknown medicinal products are prescribed just so long will this danger be a very real one.

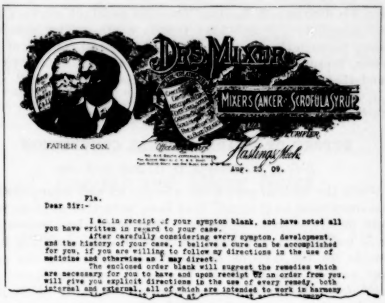
DRS. MIXER

Another Cancer Cure Concern Declared Fraudulent by the Postoffice Authorities

[The postal authorities have done the public great service during the past year or two in declaring fraudulent and denying the use of the United States mails to a number of "cancer cure" concerns. The facts brought out by the federal investigations have appeared in abstract form in the pages of THE JOURNAL and more complete accounts have been published as pamphlets. The following case is one of the latest in which a fraud-order was issued. It will appear in more extended form as a pamphlet.]

Drs. Mixer was the name under which C. W. Mixer of Hastings, Mich., conducted a mail-order "cancer cure" concern. There were no Drs. Mixer, C. W. Mixer being neither a graduate in medicine nor licensed to practice medicine. His methods differed but little from those of similar concerns. About the only variation from the stereotyped claims and ways of the "cancer cure" fraternity was in the representation that C. W. Mixer's father (who, by the way, had been dead many years) had a cancer that the "best physicians in America" could not cure. He—Mixer, senior—then "discovered the great remedy that cured him," and, of course, the same "remedy" was the one now sold by Drs. Mixer.

In other respects the methods of this concern did not differ from those of the other "cancer cure" frauds which have been exposed. The claims were equally extravagant and the system of follow-up letters in no wise original. The "remedy" was claimed to have cured 86 per cent. of those who had taken it and equal success was said to have attended the treatment of either internal or external cancer. The usual symptom blank was to be filled out by the victim and on payment of the required fee a batch of medicines would be sent.


DRS. MIXER
MIXER'S CANCER-SCROFULA SYRUP
FATHER & SON.
Hastings, Mich.
Aug. 25, 09.
Dear Sir:-
I am in receipt of your symptom blank, and have noted all you have written in regard to your case.
After carefully considering every symptom, development, and the history of your case, I believe a cure can be accomplished for you, if you are willing to follow my directions in the use of medicine and otherwise as I may direct.
The enclosed order blank will suggest the remedies which are necessary for you to have and upon receipt of an order from you, will give you explicit directions in the use of every remedy, both internal and external, all of which are intended to work in harmony

Photographic reproduction of part of the circular letter which the victims received after sending in the "symptom blank."

Dr. F. P. Morgan of the Department of Agriculture opened correspondence with Drs. Mixer under an assumed name and on filling out a symptom blank he was told that the case described was one of cancer. Mixer perceived "no reason why you can not be cured" and on the receipt of $11.80 sent the "treatment" which consisted of seven medicines. These nostrums were analyzed in the government laboratories and were found to be composed, respectively, as follows:

1. "MIXER'S CANCER AND SCROFULA SYRUP": A syrup containing potassium iodid, 6 per cent., alcohol and a small amount of vegetable ingredient similar to sarsaparilla flavored with methyl salicylate.

2. "NO. 1 WASH": Solution of hydrogen peroxid.

3. "NO. 1 ALTERATIVE": A mixture of alcohol and water containing a large amount of glycerin and a small amount of what appeared to be gentian.

4. "CANCER REDUCER": A strong alcoholic solution of camphoraceous oils, with considerable glycerin.

5. "CANCER PASTE": Vaselin (petrolatum) containing a large amount of ground flaxseed and some camphoraceous substance with what appeared to be hyoscyamus.

6. "CANCER SALVE": A mixture of vaselin (petrolatum) and lanolin (wool-fat) with powdered opium and tannin.

7. "CLEANOINE SOAP POWDER": Powdered soap containing borax and thymol.

In the advertising matter sent out by Mixer every effort was made to impress prospective victims with the idea that the concern was conducted by physicians. Nor was this the only element of fraud. Part of the "literature" contained a reprint of an article entitled "Palliatives and Curatives in the Treatment of Cancer and Scrofula," by C. H. Brown, M.D., from the *American Journal of Health*. This was prefaced with the statement: "The following is reprinted from one of the leading journals of the country." As a matter of fact, the *American Journal of Health* was not a "leading journal" but a fraudulent publication, printed to sell laudatory notices to mail-order medical concerns. These concerns then used such notices as being the indorsement of a medical publication. At the hearing Mixer admitted that he paid five or ten dollars—he could not recall the exact amount—for the article.

The usual defense was offered—testimonials. There was no satisfactory evidence adduced to show that the individuals claiming to have been cured of cancer by the Drs. Mixer treatment ever had cancer. As the assistant attorney-general said in recommending that a fraud-order be issued: "It is to be expected that out of the multitude of cases that this advertiser treats each year there should be a certain number of instances in which persons do not have cancer at all but are afflicted with some non-malignant sores which are amenable to treat-

2. The details of the analyses will be sent on receipt of a stamped self-addressed envelope.

ment [Especially to treatment with potassium iodid, which Mixer used!—ED.] and which in some instances do yield to treatment." After hearing all the evidence against Mixer as well as the defence offered by his attorney, together with some remarks in behalf of the "cancer curer" by the congressman from his district—E. L. Hamilton—the assistant attorney general reported: "I find that this is a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises, and I therefore recommend that a fraud order be issued against Drs. Mixer." And it was issued.

REPORT OF PHARMACOPEIAL CONVENTION

Held in Washington, D. C., May 10-13, 1910

While the medical profession was not so well represented at this convention as it should have been, nevertheless there were more medical men in attendance than at the last convention. As is well known, the main business of the convention is to provide for the revision of the Pharmacopeia and the principal part of this is the election of the revision committee. Heretofore, the revision committee has consisted of twenty-five, but this number was considered too large for practical work and too small to be representative. A radical change was made in that the committee of revision was enlarged to fifty; this large committee selects from its number fifteen who are to be known as the executive revision committee. While the whole committee of fifty has general supervisory functions the smaller committee will be responsible for the work.

It will be noted that the medical men on the revision committee are in an extreme minority, only three or four practicing physicians being in the list. While this is true, the medical profession is much better represented than heretofore for the reason that a considerable number of the revision committee represent medical interests and the medical profession. The Council on Pharmacy and Chemistry is well represented, having eight of its members on the committee of revision.

Officers Elected

A decided compliment was paid Dr. H. W. Wiley by the convention when it selected him as its president. The following officers were elected: President, Dr. H. W. Wiley, Washington, D. C.; first vice-president, Dr. N. S. Davis, Chicago; second vice-president, Prof. Charles Caspari, Jr., Baltimore; third vice-president, Dr. Oliver T. Osborne, New Haven, Conn.; fourth vice-president, Mr. Leo Eliel, South Bend, Ind.; fifth vice-president, Dr. W. A. Bastedo, New York; secretary, Dr. M. G. Motter, Washington, D. C.; assistant secretary, Dr. Noble P. Barnes, Washington, D. C.; treasurer, Mr. S. L. Hilton, Washington, D. C.

GENERAL COMMITTEE OF REVISION

Alpers, William C., Retail Druggist, New York.
Anderson, John F., Director, Hygienic Laboratory, United States Public Health and Marine-Hospital Service.
Arny, Harry V., Professor of Theory and Practice of Pharmacy, Cleveland School of Pharmacy.
Bartley, Elias H., Professor of Chemistry, Toxicology and Pediatrics, Long Island College Hospital, Brooklyn, N. Y.
Beringer, George M., Retail Druggist, Camden, N. J.
Bodemann, Wilhelm, Retail Druggist, Chicago.
Caspari, Charles, Jr., Professor of Theory and Practice of Pharmacy, University of Maryland, Department of Pharmacy.
Caspari, Charles E., Professor of Chemistry, St. Louis College of Pharmacy.
Coblentz, Virgil, Professor of Chemistry, College of Pharmacy of the City of New York.
Davis, Nathan S., Professor of Principles and Practice of Medicine and Clinical Medicine, Northwestern University Medical School.
Diehl, C. Lewis, Professor of Practical Pharmacy, Louisville College of Pharmacy.
Diekman, George C., Professor of Theory and Practice of Pharmacy, College of Pharmacy of the City of New York.
Dohme, Alfred R. L., Chemist, Sharp & Dohme, Baltimore, Md.
Eberle, Eugene G., Editor, The Southern Pharmaceutical Journal, Dallas, Tex.
Edmunds, Charles Wallis, Professor of Therapeutics and Materia Medica, University of Michigan, Department of Medicine and Surgery.
England, Joseph W., Director Scientific Department, Smith, Kline & French Company, Philadelphia.
Francis, John M., Chemist, Parke, Davis & Company, Detroit.
Good, James M., Professor of Theory and Practice of Pharmacy, St. Louis College of Pharmacy.
Gordin, Harry M., Professor of Chemistry, Northwestern University, Department of Pharmacy.
Gregory, Willis G., Buffalo College of Pharmacy.
Haines, Walter S., Professor of Chemistry, Materia Medica and Toxicology, Rush Medical College, Chicago.
Hallberg, Carl S. N., Professor of Theory and Practice of Pharmacy, University of Illinois, School of Pharmacy.
Hatcher, Robert A., Professor of Pharmacology, Cornell University, Medical Department, New York.
Hopp, Lewis C., Retail Druggist, Cleveland.
Hunt, Reid, Chief, Division of Pharmacology, Hygienic Laboratory, United States Public Health and Marine-Hospital Service.
Kebler, Lyman F., Chief of Drug Laboratory, Bureau of Chemistry, U. S. Department of Agriculture.
Koch, Julius A., Professor of Chemistry, University of Pittsburgh, Department of Pharmacy.
Kraemer, Henry, Professor of Botany and Pharmacognosy, Philadelphia College of Pharmacy.
Kremers, Edward, Professor of Chemistry, University of Wisconsin, School of Pharmacy.
LaWall, Charles H., Associate Professor of Theory and Practice of Pharmacy, Philadelphia College of Pharmacy.
Long, John H., Professor of Chemistry, Northwestern University Medical School, Chicago.
Lyons, Albert B., Chemist, Nelson, Baker & Company, Detroit.
Marvel, Philip, Physician, Atlantic City, N. J.
Nixon, Charles F., Retail Druggist, Leominster, Mass.
Osborne, Oliver T., Professor of Therapeutics and Materia Medica, Yale Medical School.
Plaut, Albert, Wholesale Druggist (Lehn & Fink), New York.
Puckner, W. A., Director of Chemical Laboratory, American Medical Association, Chicago.
Rawlenheimer, Otto, Retail Druggist, Brooklyn, N. Y.
Remington, Joseph P., Professor of Theory and Practice of Pharmacy, Philadelphia College of Pharmacy.
Rosengarten, George D., Chemist, Powers-Weightman-Rosengarten Company, Philadelphia.
Rusby, Henry H., Professor of Botany and Materia Medica, College of Pharmacy of the City of New York.
Sadtler, Samuel P., Professor of Chemistry, Philadelphia College of Pharmacy.
Sayre, Lucius E., Professor of Materia Medica, University of Kansas, School of Pharmacy.
Schlotterbeck, Julius O., Professor of Pharmacognosy and Materia Medica, University of Michigan, School of Pharmacy.
Sollmann, Torald, Professor of Pharmacy and Materia Medica, Western Reserve University Medical Department.
Stevens, A. B., Professor of Theory and Practice of Pharmacy, University of Michigan, School of Pharmacy.
True, Rodney H., Physiologist, Bureau of Plant Industry, U. S. Department of Agriculture.
Vanderkleed, Charles E., Chemist, H. K. Mulford Company, Philadelphia.
Wilbert, M. I., Assistant Pharmacologist, Hygienic Laboratory, United States Public Health and Marine-Hospital Service.
Wood, Horatio C., Jr., Associate Professor of Pharmacology, University of Pennsylvania.

Correspondence

A Medical Play by a Medical Man at a Medical Society Meeting

To the Editor:—Dr. Dan Millikin is not only an honored practitioner, having been president of the Ohio State Medical Society in 1895 and being a descendant of a long line of physicians, himself and son Dr. Mark Millikin representing respectively the fourth and fifth generations practicing in their native city, but he is also a playwright and actor of local and state fame. At the meeting of the Ohio State Medical Society in Toledo, May 11, an audience of 800 physicians and their wives greeted Dr. Millikin and his talented company from Hamilton in a way that left no doubt about the attractiveness of this particular play, and the merits of this style of entertainment of medical men. The medical comedy entitled "What Would Mrs. MacThinkar say?" is brilliant and clever and the players showed talent and excellent training.

But it is not to call attention to this play or to the artists in particular but rather to comment on entertainments that this letter is written. We should break away from the conventional vaudeville and punch affairs and cultivate a line of amusements that have characteristic, and educational qualities. Professional experience is overflowing with material ready for the touch of the playwright, and at the same time, as our experience shows, a medical audience is especially "sensitized" to appreciate the humor and pathos characteristic of a well-presented medical comedy.

THOMAS HUBBARD.

The Public Service

Medical Department, U. S. Army

Changes for the week ended May 14, 1910:

The following named officers of the Medical Corps are detailed as instructors in the subjects specified after their respective names at the school for officers of the Medical Corps of the National Guard of Ohio, to be held in Columbus, Ohio, June 8 and 9, 1910:

Munson, Edward L., major, Camp Sanitation and Medical Organization in the Field.

Reynolds, Charles R., major, Manual, Medical Department, and Field Service Regulations.

Fisher, Henry C., major, Physical Examination of Recruits.

Pipes, Henry F., capt., Papers and Records.

Morgan, Norman D., C. S., reported for duty at Presidio of San Francisco.

Hallett, H. J., 1st lieut., M. R. C., reported for temporary duty at Fort Hamilton, New York.

Pulver, A. L., 1st lieut., M. R. C., reported for temporary duty at Fort Jay, N. Y.

Brownlie, James W., C. S., ordered to proceed from San Francisco, to the Presidio of San Francisco, and report to the commanding officer, detachment of Company M, 3rd Battalion of Engineers, for duty with and to accompany that command to Ataccadero, Cal.

Stephenson, William, lieut. col., ordered to proceed from Fort Leavenworth, Kan., to Fort D. A. Russell, Wyo., for duty with Battery C, 2nd Field Artillery from that post to San Francisco, then return to his station.

Woodall, William P., capt., ordered to Fort D. A. Russell, Wyo., for duty.

Bierbower, H. C., 1st lieut., M. R. C., on expiration of leave of absence ordered to Fort Robinson, Neb., for duty.

Boyer, Perry L., capt., ordered to Fort Mason, Cal., for temporary duty, and for temporary duty as attending surgeon, San Francisco, in addition to his duties at Fort Mason, Cal.

Eastman, William R., capt., on expiration of leave of absence ordered to Fort Mason, Cal., for duty, and attending surgeon at San Francisco.

Keefer, Frank R., lieut. Col., promoted to, with rank from April 14, 1910.

Grubbs, Robert B., major, promoted to, with rank from April 14, 1910.

Ekwurzel, George M., major, on the expiration of his present leave of absence ordered to Fort Mackenzie, Wyo., for duty.

Brooks, William H., major, ordered to accompany 35th Company Coast Artillery from San Francisco, to Fort Monroe, Va., then return to his proper station.

Delacroix, A. C., 1st lieut., M. R. C., on arrival at San Francisco, ordered to accompany troops to Fort Sill, Okla., on completion of this duty to proceed to Boise Barracks, Idaho, for duty, as heretofore ordered.

Peck, Luke B., 1st lieut., M. R. C., granted leave of absence for 1 month and 10 days.

Miller, Reuben B., capt., granted 15 days' leave of absence.

Mason, D. S., the leave of absence heretofore granted is extended 2 months and 20 days.

Sweazey, Verge E., capt., granted 4 months' leave of absence.

Billingslea, C. C., capt., leave of absence extended 1 month.

Pulver, Arthur L., 1st lieut, M. R. C., relieved from temporary duty at Fort Jay, N. Y., and ordered to Fort Wood, N. Y., for temporary duty.

Little, William L., capt., relieved from temporary duty at Fort Wood, N. Y., and ordered to return to station, Fort Adams, R. I.

Sharpe, Herbert H., 1st lieut., M. R. C., relieved from temporary duty at Fort Adams, R. I., and ordered to return to station, Fort Jay, N. Y.

Tefft, William H., capt., granted leave of absence for 1 month.

Straub, Paul F., major, detailed as a member of the General Staff Corps.

Medical Corps, U. S. Navy

Changes during the week ended May 14, 1910:

Bogan, F. M., surgeon, detached from the *Wisconsin*, and ordered to the *Nebraska*.

Heiner, R. G., P. A. surgeon, detached from the *Independence* and ordered home to wait orders.

Bogan, F. M., surgeon, orders of May 6, detaching from the *Wisconsin* and ordering to the *Nebraska*, revoked.

Cather, D. C., P. A. surgeon, ordered to the Naval Academy.

Kaufman, J. B., asst.-surgeon, ordered to the Navy Yard, Norfolk, Va.

Ely, C. F., P. A. surgeon, detached from the Naval Station, Olongapo, P. I., and ordered to the *Wilmington*.

Higgins, S. L., P. A. surgeon, detached from the *Wilmington* and ordered home.

Higgins, M. E., asst.-surgeon, detached from the *Charleston* and ordered home.

U. S. Public Health and Marine-Hospital Service

Changes for the week ended May 11, 1910:

Carter, H. R., surgeon, granted 5 days' leave of absence from May 29, 1910.

Carmichael, D. A., surgeon granted 14 days' leave of absence from May 27, 1910:

Cobb, J. O., surgeon, granted 7 days' leave of absence from May 7, 1910.

Wertenbaker, C. P., surgeon, granted 4 days' leave of absence from May 4, 1910.

Goldberger, Joseph, P. A. surgeon, granted 7 days' leave of absence from April 29, 1910, under paragraph 191, Service Regulations. Granted 14 days' leave of absence from May 6, 1910.

Bahrenburg, L. P. H., P. A. surgeon, granted 14 days' leave of absence from April 22, 1910, on account of sickness.

Rucker, W. C., P. A. surgeon, granted 1 month's leave of absence from May 4, 1910.

Warner, H. J., asst.-surgeon, granted 9 days' leave of absence from May 16, 1910.

Ridlon, J. R., asst.-surgeon, directed to report at Bureau for special temporary duty.

Ledke, James P., asst.-surgeon, granted 7 days' leave of absence from April 12, 1910, under paragraph 191, Service Regulations.

Hallett, E. B., acting asst.-surgeon, granted 1 day's leave of absence, May 7, 1910.

Lawhorn, C. C., acting asst.-surgeon, granted 13 days' leave of absence from May 11, 1910.

Unuf, B, acting asst.-surgeon, granted 2 days' extension of leave of absence from April 26, 1910, on account of sickness.

Board of medical officers convened to meet at Montreal, Canada, May 3, 1910, for the purpose of examining an alien. Detail for the board: Passed Assistant Surgeon E. H. Mullan, chairman; Acting Asst.-Surgeon George Mathewson; Acting Asst.-Surgeon Fred Tooke, recorder.

Board of medical officers convened to meet at the Marine Hospital, San Francisco, May 16, 1910, for the purpose of conducting a physical examination of an officer of the U. S. Revenue-Cutter Service. Detail for the board: Surgeon J. M. Gassaway, chairman; Passed Assistant Surgeon R. E. Ebersole, recorder.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE LOCAL ANESTHETIC EFFECT OF QUININ: A CLAIM OF PRIORITY

To the Editor:—Allow me to state, in answer to the letter of Dr. W. S. Hoy on this subject (THE JOURNAL, May 14, 1910, p. 1628) that my experimental work resulting in the discovery of the local anesthetic effect of quinin was done in 1885, more than ten years prior to my published report in 1896. This, I believe, establishes the matter of priority as far as this is shown by any published claims to date. According to Dr. Hoy's statement, Dr. Sylvester began the use of quinin as a local anesthetic endermically (not hypodermically) about twenty-two years ago.

V. M. GRISWOLD, M.D., Fredonia, N. Y.

TRIPLE KIDNEY

To the Editor:—Please let me know how many cases of triple kidney have been reported, when and by whom, and the location of the third kidney. E. S. LAUZER, Rock Springs, Wyo.

ANSWER.—This anomaly is very rare and its existence has been doubted by some authors. The following are all the distinct references to cases that we have been able to find.

Beauchêne fils: Description de trois reins réunis trouvés dans le cadavre d'une jeune femme, *Bull. Fac. de méd. de Paris*, 1810, ii, 30.

Renaud: Des reins réunis par une espèce de bande à la forme d' un troisième rein, *Bull. Soc. anat. de Paris*, 1835, x, 2

Supernumerary Kidney, *London Med. Gaz.*, 1838, new series, ii, 127.

Hyrtl: Ein wahrer Ren tertius, *Oester. med. Wchnschr.*, 1841, p. 995.

Amick: Four Kidneys, *Cincinnati Med. Reports*, 1871, iv, 551-554.

Morris: Rep. Surgeon-General Marine-Hospital Service, U. S. A., 1885, p. 148.

Cheyne, W.: *Lancet*, London, 1899, i, 215.

Rep. Supervising Surgeon Marine Hospital, Washington, 1884-5, pp. 148-150.

Jump, R. L.: Supernumerary Kidneys, *Occidental Med. Times*, 1894, viii, 173.

Von Hansemann: Double Kidney, *Berl. klin. Wchnschr.*, 1897, No. 4.

Barlet, J. M.: A Pathologic Curiosity (Supernumerary Kidney), *Lancet*, London, 1904, i, 124.

Calabrese: Rein supernuméraire constaté pendant la vie, *Ann. d. mal. d. org. génito-urin.*, 1908, ii, 1841.

Calabrese: Encore un rein supernuméraire constaté pendant la vie, *Ann. d. mal. d. org. génito-urin.*, 1909, i, 749.

Desnot and Minet: ("Maladies des voies urinaires," p. 1044) say: This anomaly is exceedingly rare. The supernumerary kidney may be fused with the two others, in which case it has been classed as a trilobate kidney.

H. Kümmel says that supernumerary kidneys occur. Four kidneys were present twice; three were found once ("Ergänzungsbuch des Handbuch der praktischen Medizin," Edition 2, 1907; Ebstein, W., and Schwalbe, J.: Chirurgie des praktischen Arztes, p. 602).

As to the location of the third kidney, we find in Rauber-Kopsch "Lehrbuch der Anatomie," Edition 7, Part 4, The Intestines, p. 211, the statement: "The third kidney lies usually in front of the vertebral column or at one side of it or in the pelvis."

Reference may also be made to Rayer: "Maladies des reins," and to Cadoré, F. L.: "Les anomalies congénitales du rein," published by Masson, Lille, 1903, p. 205.

Marriages

SIMON WENDKOS, M.D., to Miss Sarah Seidman, both of Philadelphia, May 8.

JULIAN A. HIELSCHER, M.D., to HELEN HUGHES, M.D., both of Mankato, Minn., May 2.

JACOB MYERS, M.D., Chicago, to Miss Gertrude Myers, of Mount Pulaski, Ill., April 20.

HAYDEN LYLE FISCHER, M.D., Kewanee, Ill., to Miss Georgia Elizabeth Poole, of Chicago, May 18.

HARLOW V. WILSON, M.D., to Mrs. Daisy Jones, both of Champaign, Ill., at Chicago, April 30.

ALVA V. MCCURRY, M.D., Baltimore, Md., to Miss Frances Varina Robertson, at Baltimore, January 3.

JOHN G. BICKLEY, M.D., to Miss Tina M. Stewart, both of Waterloo, Iowa, at Morrelton, Ark., April 29.

CHARLES FISHER ANDREW, M.D., Longmont, Colo., to Mrs. Sadie Whitney, of Denver, at Chicago, recently.

LUCIUS WARREN JOHNSON, M.D., U. S. Navy, to Miss Margaret Crosby Cranston, of Washington, D. C., May 17.

Deaths

Howard H. Barker, M.D. Georgetown University, Washington, D. C., 1870; a member of the American Medical Association; formerly president of the American Therapeutic Society, Medical Association of the District of Columbia, and Washington Therapeutic Society; professor of obstetrics and gynecology and dean of the Medical Department of Georgetown University; surgeon to the Columbia and Sibley Memorial hospitals, surgeon in charge of diseases of women in the Central Dispensary and Emergency Hospital; and consulting gynecologist to the Eastern Dispensary; died at his home in Washington, May 8, from uremia, aged 61.

James Decker Spencer, M.D. Bellevue Hospital Medical College, 1870; a member of the Medical Society of the State of New York, and president in 1896; formerly president of the Jefferson County Medical Society; a member of the American Public Health Association, and New York Academy of Medicine; local surgeon for the Rome, Watertown and Ogdensburg Railroad; surgeon to the Jefferson County Hospital; and president of the medical board and consulting surgeon to the Watertown City Hospital; died at his home, May 5, from cerebral hemorrhage, aged 60.

George Arnold Bellows, M.D. Detroit Medical College, 1881; a member of the American Medical Association; physician to the Seneca County (N. Y.) Almshouse from 1884 to 1892; health officer of Waterloo from 1882 to 1883; U. S. pension examining surgeon from 1887 to 1895; coroner of Seneca county for several years, and since 1891, a member and secretary of the board of trustees of Waterloo Academy; died at his home in Seneca Falls, May 10, from acute nephritis, aged 53.

Charles S. Martin, M.D. University of Pennsylvania, Philadelphia, 1890; a member of the Medical Society of the State of Pennsylvania; recently appointed postmaster of Allentown; for ten years a member of the board of health; since 1897 a member of the board of trustees of the Allentown Hospital; secretary of the Hospital Association since 1892, and a member of the City Park Commission; died at his home, May 4, from heart disease, following pneumonia, aged 43.

Charles Austin Devendorf, M.D. Bellevue Hospital Medical College, 1866; for many years a practitioner of Detroit; a medical cadet, assistant surgeon and major of the line during the Civil War; professor and emeritus professor in the Detroit College of Medicine; one of the organizers and for several years chief of the medical staff of the Children's Free Hospital; died at his country home near Sandwich, Ont., May 3, from cerebral hemorrhage, aged 70.

John Joseph Gilhuley, M.D. Bellevue Hospital Medical College, 1894; of Bridgeport, Conn.; acting assistant surgeon in the Army during and after the Spanish-American War, with service in Porto Rico and the Philippine Islands; formerly city physician and fire department surgeon of Waterbury, Conn.; and later physician to the charities department of Bridgeport; died in Norwich, Conn., April 25, from acute nephritis, aged 36.

Elijah W. Jay, M.D. Cleveland College of Physicians and Surgeons, 1893; a member of the Iowa State Medical Society; coroner of Marshall county; member of the Marshalltown city council in 1897; who, while making an emergency run in an ambulance to a hospital with one of the victims of the Rock Island wreck at Green Mountain, March 21, was thrown from the ambulance, the fall resulting in a severe hernia, died in a hospital in Marshalltown, May 5, from pneumonia, aged 47.

Samuel T. Haffner, M.D. College of Physicians and Surgeons, Baltimore, 1874; a member of the American Medical Association, and once president of the Frederick County Medical Society; for several terms health officer of Frederick county and physician of Montevue Hospital, Frederick; elected clerk of the court in 1903; died at his home in Frederick, May 6, from angina pectoris, aged 61.

George W. Rohr, M.D. Northwestern University Medical School, 1862; Illinois Army Board, 1864; a member of the Illinois State Medical Society; surgeon of the Fifty-second Illinois Volunteer Infantry throughout the Civil War; local pension examiner; for more than forty years a practitioner of Rockford; died at his home, May 5, from heart disease, aged 76.

Jesse Lyman Conant, Jr., M.D. University of Vermont, Burlington, 1885; of Boise, Idaho; secretary of the Idaho State Board of Health; first lieutenant and assistant surgeon First Idaho Infantry, U. S. V. during the Spanish-American War with service in the Philippine Islands; died in the Josephine Hospital, Weiser, May 2, from cerebral hemorrhage, aged 54.

Francis Joseph Hilger, M.D. St. Louis College of Physicans and Surgeons, 1902; a member of the Iowa State Medical Society; lecturer on diseases of children in the training school for nurses at St. Joseph's Mercy Hospital, Dubuque, and a member of the medical staff of the hospital; died at his home in that city, May 3, from tuberculosis, aged 32.

John MacCurdy, M.D. Western Reserve University, Cleveland, 1858; Jefferson Medical College, 1859; a member of the Ohio State Medical Association; assistant surgeon of the Twenty-third Ohio Volunteer Infantry and a prisoner in Libby Prison during the Civil War; died at his home in Youngstown, May 4, from cancer, aged 74.

Benjamin R. Davidson, M.D. University of Maryland, Baltimore, 1867; for many years a practitioner of Anne Arundel county, Md.; and a resident of Davidsonville; physician to the county almshouse; treasurer of the county and register of wills; died in the Hebrew Hospital, Baltimore, May 1, from cerebral hemorrhage, aged 63.

George Briggs Richardson, M.D. Hospital College of Medicine, Louisville, 1890; formerly of Paradise, Ariz.; a member of the American Medical Association, and local surgeon for the El Paso and Southwestern Railroad; died at his home in Rodeo, N. M., May 2, from pneumonia, aged 48.

Henry Belt, M.D. Bellevue Hospital Medical College, 1898; a member of the American Medical Association, New York Academy of Medicine, and Medical Jurisprudence Society of New York; a specialist on neurology; died at his home in New York City, May 6, from pleurisy, aged 43.

William Troup Bell, M.D. University of Pennsylvania, Philadelphia, 1863; for several years superintendent of the City and County Hospital, San Francisco, and superintendent of the Masonic Home, Decoto, Cal.; died at his home in Lake Providence, La., April 30, aged 73.

James J. Linn (license, years of practice, Minn., 1887); for 52 years a practitioner of Minneapolis; one of the founders of St. Barnabas Hospital; and builder of the first isolation hospital in Minneapolis; died at his home, April 28, from heart disease, aged 83.

Cynthia Maria Nordstrom, M.D. Boston University School of Medicine, 1883; for sixteen years a member of the Malden (Mass.) School Board, and secretary of the medical board of the Malden Hospital; died at her home, May 4, from cerebral hemorrhage, aged 77.

Richard E. Garnett, M.D. University of Louisville, 1880; a member of the American Medical Association; physician of Barren county, Ky.; and secretary of the Glasgow Board of Health; died at his home in Glasgow, May 2, from heart disease, aged 54.

Robert S. McMurdy, M.D. Albany (N. Y.) Medical College, 1846; a member of the Minnesota State Medical Association; for 37 years a practitioner of Minneapolis; died at the home of his son in that city, April 29, from senile debility, aged 85.

Marshall P. Robinson, M.D. Eclectic Medical Institute, Cincinnati, 1876; formerly physician of Fayette county, Ky., and pension examining surgeon; died at the home of his sister in Lexington, May 6, from nephritis, aged 63.

Alvin Ephraim Wing, M.D. University of Colorado, Boulder, 1905; health officer of Rich county, and surgeon to the Utah and Wyoming Telephone Company; died at his home in Randolph, Utah, April 28, from erysipelas, aged 33.

James B. Robertson, M.D. University of Pennsylvania, Philadelphia, 1861; a surgeon in the Confederate service during the Civil War; died suddenly at his home in Clayton, N. C., April 28, from cerebral hemorrhage, aged 73.

Thomas Grant, M.D. Philadelphia University of Medicine and Surgery, 1876; of Liberty, N. Y.; died suddenly at the home of his sister in New York City, Dec. 30, 1909, from disease of the heart and kidneys, aged 73.

George Maxson Lamb, M.D. Hahnemann Medical College, Philadelphia, 1879; town physician and health officer of Hoosick Falls, N. Y., for twenty years; died at his home, May 3, from sarcoma of the throat, aged 52.

Samuel Charles Weeks, M.D. Tulane University, New Orleans, 1893; a member of the Louisiana State Medical Society; died at his home in New Orleans, April 28, from tuberculosis, aged 43.

James A. Ogden, M.D. University of Pennsylvania, Philadelphia, 1874; of Deadwood, S. D.; formerly of Parchalville, Philadelphia; died in Bunker Hill, Kan., April 24, from erysipelas, aged 61.

Edwin G. Keifer, M.D. Cincinnati College of Medicine and Surgery, 1869; a member of the Illinois State Medical Society; died at his home in Harvey, April 29, from arteriosclerosis, aged 66.

Louis Gustav Bauer, M.D. University of Pennsylvania, 1872; a member of the American Medical Association; died at his home in Germantown, Philadelphia, May 5, from cancer, aged 64.

Robert Martin, M.D. Starling Medical College, Columbus, Ohio, 1875; from 1881-1890, health commissioner of Milwaukee; died at his home in that city, May 2, from nephritis, aged 69.

Andrew J. Pennington, M.D. University of Alabama, Mobile, 1878; a member of the Louisiana State Medical Society; died at his home in Gibsland, April 26, from heart disease, aged 62.

William B. Robbins, M.D. Jefferson Medical College, 1873; of Catawissa, Pa.; died in the Jefferson Hospital, Philadelphia, April 29, after an operation for mastoiditis, aged 56.

Robert D. Gwin, M.D. Jefferson Medical College, 1855; surgeon in the Confederate service during the Civil War; died at his home near McKenzie, Tenn., April 29, aged 83.

George Washington Greaves, M.D. Rush Medical College, 1874; of Spencer, Iowa; died at the home of his son in Sturgeon Bay, Wis., April 22, from dropsy, aged 58.

John M. McKeage, M.D. University of Pennsylvania, Philadelphia, 1847; formerly an employee of the St. Louis health department; died in St. Louis, May 1, aged 85.

Severn M. Kelly, M.D. University of Minnesota, Minneapolis, 1905; formerly of Canby, Minn.; died at the home of his sister in Mankato, Minn., April 25, aged 30.

Hardy Murfrees Banks, M.D. New York University, New York City, 1851; of Englewood, N. J.; died at the home of his daughter in New York City, May 5, aged 79.

Tunis Housel Fisher, M.D. New York University, New York City, 1889; died at his home in South Brooklyn, May 7, from cerebral hemorrhage, aged 57.

John Henry Stemple, M.D. University of Maryland, Baltimore, 1901; died at his home in Conshohocken, Pa., April 19, after a short illness, aged 33.

Maurice Henry Walsh, M.D. Yale; formerly a practitioner of New Haven, Conn.; died in Fort Worth, Texas, April 4, from heart disease, aged 45.

Ernest Hamilton Smith, M.D. Tulane University, New Orleans, 1880; died at his home in Lacour, La., March 18, from heart disease, aged 54.

Frederick Castle, M.D. University of Michigan, Ann Arbor, 1869; died at his home in Lowell, Ind., April 19, from cerebral hemorrhage, aged 69.

Thomas F. Williams, M.D. Eclectic Medical Institute, Cincinnati, 1888; died at his home in Des Moines, April 25, from pneumonia, aged 46.

Joseph Goffin Bailey, M.D. University of Buffalo, N. Y., 1871; died at his home in Santa Ana, Cal., April 29, from heart disease, aged 65.

Alonzo Edson Robertson, M.D. Rush Medical College, 1893; died at his home in Mason City, Neb., May 3, from pneumonia, aged 38.

Edward James Rothe, M.D. Dublin; died at his home in Harison, N. J., April 21, from nephritis, aged 50.

Walter S. Dick (registration, Okla., 1908); died at his home in Baum, April 18, 1909, from pneumonia.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, St. Louis, June 7-10.

American Academy of Medicine, St. Louis, June 4-6.
American Assn. of Medical Milk Commissions, St. Louis, June 6.
American Association of Medical Examiners, St. Louis, June 5-6.
American Gastro-Enterological Association, St. Louis, June 6-7.
American Proctologic Society, St. Louis, June 6
American Society of Tropical Medicine, St. Louis, June 11.
American Urological Society, St. Louis, June 6-7.
Assn. of Amer. Teachers of Diseases of Children, St. Louis, June 6.
Connecticut State Medical Society, New Haven, May 25-26.
Maine Medical Association, Bar Harbor, June 29-30.
Massachusetts Medical Society, Boston, June 7-8.
Nat. Con. State Med. Exam. and Licensing Bds., St. Louis, June 6.
New Jersey Medical Society, Atlantic City, June 28-30.
North Carolina, Med. Soc. of State of, Wrightsville Beach, June 21.
Rhode Island Medical Society, Providence, May 31.
Wisconsin, State Medical Soc. of, Milwaukee, June 22-24.

AMERICAN PEDIATRIC SOCIETY

Annual Meeting, held in Washington, D. C., May 3-5, 1910

The President, DR. D. L. EDSALL, in the Chair

Officers Elected

The following officers were elected for the ensuing year: President, Dr. Henry D. Chapin, New York; vice-president, Dr. J. Mason Knox, Baltimore; secretary, Dr. Samuel S. Adams, Washington, D. C. (reelected); treasurer, Dr. Charles Hunter Dunn, Boston; recorder and editor, Dr. L. E. La Fetra, New York; member of council, Dr. Isaac A. Abt, Chicago.

Lake Mohonk was selected as the next place of meeting.

President's Address: Importance of Pediatrics

DR. DAVID L. EDSALL, Philadelphia: The honor of serving for a year as the president of a group of men who are the highest representatives of their type of work in this country imposes on one the duty not merely of giving expression to complacent satisfaction, but also of devoting serious thought to the activities that may be open to the members of the society, as individuals or as a group of men, by which they might still further advance the honorable standing of the work that is their chief concern in life. Proper dignity and regard are not yet accredited in this country to a subject which has proved to me unquestionably the broadest, most complex, and most important division of general medicine; and proper standing will not be generally given to pediatrics in this country until better things are demanded for it by concerted action and by a large group of those who are the recognized leaders. The dignity of the intellectual results are determined by two things: first, by the opportunities offered those who teach the subject and by the manner in which these opportunities are made use of; second, by the extent to which those who follow that pursuit engage in matters that vitally affect the welfare not only of individuals with whom they come in immediate contact but rather of the public at large. There are ways in which great usefulness can be secured for pediatrics in both of these directions and the society, by the strength of carefully planned concerted action, could rapidly and greatly benefit the position of the work which it represents. The methods pursued by the teachers determine the standards demanded in the subject and the quality of the future exponents of the subject. Among the teachers of this subject there are men who have in certain ways no superiors in any part of the world. Concerning the provisions made for their teaching, however, there are points which may be justly commented on and not wholly favorably. Pediatrics is probably more inadequately provided for in most medical schools than any other important subject. This criticism is of the general group of schools, not of individual schools. In some the system of teaching is relatively excellent; but nowhere is such good provision made for the subject as that which is made for general medicine, surgery and obstetrics. Neurology, I think, has much more actual standing and recognition in the best medical schools than has pediatrics. Yet the problems of infancy and early childhood are much more distinct from general medicine than are the problems of neurology and more properly demand generous provision for instruction. At present, there are in this country at least

twice the number of men of recognized distinction in neurology than there are in pediatrics. The explanation is patent; while the responsibility may be properly thrown in part on the shoulders of the administrators of medical schools it cannot be put wholly on them but must be shouldered by pediatrists themselves. It is a common and seemingly just statement that the clinical branches have in this country in the past generation by no means kept pace with the medical sciences in methods of teaching and investigation.

There should be better general conditions in teaching; it is a well-recognized fact among educators that unless a man does some kind of research, more or less continuously, he does not make, or at any rate does not long remain, a sound teacher; because the teacher, in order to make the student search for knowledge, must search continuously and diligently himself. The kind of research work done in any particular department is commonly accepted, and rightly so, as the best criterion of the character that the teaching in that department will exhibit. The chief essentials for making well-trained men and for attracting first-class men into a subject are that the men shall do most of the work themselves and not be merely told about it; that they shall be made precise and critical in their methods and that the craving for a sound understanding for the reason of things be satisfied by having them clearly comprehend the relation between the fundamental and the practical things. In these ways general medicine and general surgery have been transformed within two decades and now students do most of the work in the wards and dispensaries; in pediatrics the changes have been less distinctive. Cases are less frequently seen as problems to be worked out by the student himself. The propriety of studying pediatrics as a special subject rather than as a mere part of general medicine is based essentially on the fact that the infant and young child differ from adults enormously in degree and almost equally in kind, in susceptibility to infections and especially in liability to derangements of nutrition. This gives a greater justification for specialization than any based on difference in the organs of the body.

The difficulty in regard to the studying of cases can be overcome only by demanding that the clinical work in pediatrics shall be put on the same basis as that which is being struggled for and increasingly secured in medicine and surgery. The society could wisely take on itself a serious consideration of the manner in which teaching and investigation in this branch may be benefited and by individual and concerted action further whatever appears to be wise. In this way he thought results could be rapidly accomplished. Among other ways in which the society could take a useful part is a study of school conditions, and the industrial conditions among children, which should be studied by persons of calm and judicial temperament so that we may be informed on the actual state of affairs by those whose opinion would be more reliable than that of perhaps over-enthusiastic philanthropists.

Experimental Study of the Food Reactions in the Infant Stomach, Compared with Those in Vitro

DRS. D. M. COWIE and WILLIAM D. LYONS, Ann Arbor, Mich.: Because of the many discordant views as to disturbances of infant digestion we have endeavored to ascertain how food reactions in the infant stomach compare with those *in vitro*. We determined first the stimulating effect of normal food; how it is altered by certain chemical substances and how that compared with results obtained in test tubes. We found that the stomach is capable of stimulation from the first day of life; that all the ferments are secreted at that time. The secretion of acid was represented by curves which gradually rise. Taking samples of stomach contents from time to time a curve characteristic of the majority of infants was obtained. We made from 150 to 200 analyses on 28 or 29 infants and rarely found free hydrochloric acid present in the stomach. It is not necessary in order for the stomach to perform all its physiologic functions. After fasting for 6 or 8 hours we found hydrochloric acid, but at the end of the feeding period or in the middle we rarely got free hydrochloric acid. We determined that the basic condition of calcium casein must be overcome before the rennin precipitate rennin curds. Conditions are different from those in test tubes. The statement that basic calcium chlorid hastens evacuation of the stomach is not true. Taking out fats and anything that would inhibit motility of the stomach we found that in 45 minutes the change had taken place producing the ordinary curd. Basic calcium chlorid did not prevent formation of curds in the stomach in the majority of cases. We also showed that acidity hastened the opening of the pylorus, and we believe that this had more to do with the evacuation of the stomach than the curds. The curds were easily crushed and large curds did not occur in normal conditions of the stomach. Calcium chlorid curds were easily precipitated. We concluded that it was not necessary to produce a perfectly soft curd, but to learn what chemical changes actually go on in the stomach. The acid control of the pylorus is of great importance.

Estimation of Chlorids in the Stomach Contents from Normal and from Atrophic Infants

DR. A. H. WENTWORTH, Boston: This paper is a continuation of work alluded to in a previous article, the principle of the research being the discovery that hydrochloric acid is diminished in the stomach contents of atrophic infants. The secreting power in cases of infantile atrophy was much diminished. The stomach of atrophic infants probably fails to secrete sufficient hydrochloric acid to stimulate the duodenum. In the first series of cases the stomach contents were obtained one hour after eating and determination was made. Results showed diminished secretion of hydrochloric acid in every case. The same experiment was made with healthy infants with variable results; in 4 cases it was greater and in 3 cases it approximated that of the atrophic infants. The results were not conclusive and a second series of observations were made. This article gives the results of the second series and certain conclusions that may be drawn from them. Unfiltered stomach contents were used in every case; soft rubber No. 19 French catheters were used; the stomach contents being obtained with the infant lying on its side. The diagnosis of infantile atrophy was made from clinical evidence alone. The possible relation of stomach contents to degree of acidity appeared not to be present in this series. A few infants showed marked gain in weight with only a trace of hydrochloric acid in the gastric juice. There was rarely more than a trace of hydrochloric acid from the stomach of atrophic infants fed on cow's milk. The results corresponded closely with those of the experiments previously made. The stomach contents of well-nourished infants fed on cow's milk showed diminished amount of hydrochloric acid, corresponding closely to about one-half of the atrophic infants. Although the diminution was marked, it was never so extreme as in the atrophic infants. The results tend to prove that marked diminution of hydrochloric acid occurs in infantile atrophy. It was also shown that these infants can gain markedly in weight without hydrochloric acid in the gastric juice, and that there is greater variation in hydrochloric acid in the stomach contents of these infants than in normal infants.

A Study of the Gastric Contents and Motility in Breast-Fed and Bottle-Fed Infants

DR. HENRY HEIMAN, New York, exhibited charts showing the experiments that were conducted in the childrens' ward at Mount Sinai Hospital, the study having been for the purpose of adding to the data on the subject of gastric digestion in infants. The first group consisted of 20 normal infants from 3 to 7 days old; in the second group were 13 artificially fed infants from 3 weeks to 7 months old. In all the temperature was normal for at least a week and the condition good. The method of procedure was, with the new-born, to weigh the baby before and after nursing. At the end of one hour the stomach contents were removed with a French catheter. No preliminary lavage was performed. In the second group 4 examinations were made for each case. The stomach contents received in a glass jar and measured in graduate, then filtered and the filtrate used for the tests. In the first group 30 specimens were examined. The quantity of milk consumed at each feeding was from 30 to 200 grams—considerably above the figures usually assumed at that time of life. In general, the pepticaction was more at the end of one hour than at the end of a half hour. The work showed in new-born infants the large amount of milk taken at one nursing; that total acidity was practically the same at the end of one hour as at the end of a half hour;

absence of free hydrochloric acid in all cases; presence of rennin in two-thirds; presence of lactic acid in one-half of the cases. In the second group pepsin was present in only 6 cases; rennin in but 2. I think that it remains for future study to place the matter of gastric analysis of infants on as firm a basis as that of adults.

Studies of the Effect of Varying Quantities of Fat and of the Presence of Various Salts on Digestion and Metabolism

DRS. CHARLES F. FIFE and B. S. VEEDER, Philadelphia, undertook studies to determine the absorption of fat in cases of chronic intestinal disease in infants. The infants were placed on definite formulas for some days and the urine and feces completely collected. Case 1, infant nine months, weight 10 pounds 9 ounces. Case 2, aged 10 months, weight 11 pounds 10 ounces. Tables and charts were exhibited to show the varying formulæ. The work showed in both cases that fat absorption was below that of healthy infants. The total amount was less the less fat ingested. When little fat was given the percentage of absorption was much less. The amount of carbohydrate present had no influence on fat absorption. Evidence pointed to the necessity of the splitting of fats before digestion. They found that in the low fat periods the actual amount of soaps in the feces was higher than in the high fat periods. The lower the fat ingestion the higher the amount of soaps. The work showed lowered fat absorption in these two cases of chronic intestinal disease while most writers claim that there is not much difference. They did not find any definite relation between the calcium, in the fat, the calcium in relation to the total amount of fat, or relation to the soaps in the feces.

Results of Substitute Feeding in Premature Infants

DR. MAYNARD LADD, Boston, concludes from a study of 125 cases of infants, in which the total mortality was 65.6, no infant under 6 months surviving, that modified milk must be considered as unsatisfactory food for premature infants and should be used only when breast milk connot be obtained. Incubators were not employed.

Effect of High-Fat and Low-Fat Diet on the Nitrogenous Metabolism of Infants

DRS. JOHN HOWLAND and ROBERT A. COOKE, New York, presented the results obtained with 3 infants put in a metabolic apparatus:

On a fat-free diet all the calories could not be supplied. On a high fat diet the calorie value rises. The protein given represented 6/10 gm. nitrogen per kilo. The first boy began with practically fat-free diet which was increased gradually until he was taking 76 gms. a day of food containing over 7 per cent. of fat; he was kept on this 2½ months, then reduced to fat-free diet. When on fat-free diet the stools were brownish, frequent and thin; as it increased they became light, and on high fat diet whitish. A second child, boy of 6 months, badly nourished with ischiorectal abscess, had stools brownish and of very foul odor, as the fat intake was increased they became light and finally white and almost dry. The ammonium output was relatively high throughout. On medium-fat diet the child did best. In Case 3 the child was a small badly nourished infant of 5 months; the investigation lasted 3 weeks. At first he took fat-free food, then it was increased rapidly. He never did well at any time; showed definite reaction to all fat feeding. The first child showed only benefit; the second with excessive amount of fat showed disturbance and the last child was upset by a moderate intake of fat. The results showed the danger of trying to draw definite conclusions from limited material. We do not advise the use of too much fat, but the individual tolerance of some infants is so great that the greatest variation may not produce any harmful results. The best diet is one containing fat and sugar both in moderation.

Nutrition of the Feeble Infant: (a) Motility of the Stomach; (b) Results of a Trial of Finkelstein's Method

DR. HENRY D. CHAPIN, New York: The proper nourishment of feeble infants is a problem that taxes the resources of the most skilful pediatrist. Digestion and assimilation may be poor, either by inheritance or from faulty feeding, and when from any cause, the general vitality of the infant is lowered, the digestive tract is usually the first to suffer and the last to recover tone. Improved diet and hygiene offered the only successful treatment; drugs are of little or no avail. In normal infants during health no great difficulty is encountered in reference to the kind and quantity of food. In feeble and badly nourished infants, however, the weak action of the stomach, especially in its muscular power, is the source of much trouble. With this in mind, a series of 21 infants were studied with regard to gastric motility. The ages were as follows: Two weeks, 1; three weeks, 1; six weeks, 1; two months, 1; three months, 6; four months, 4; five months, 2; six months, 1; seven months, 1; twelve months, 3. These infants were taken from the wards of the hospital and represented all grades of malnutrition from the begining cases to those in the last stages of atrophy. It was not possible to form any definite conclusions as to gastric motility based on the age of the child from these cases. Of 19 examined at the end of 3 hours, only 6 could be shown to have approximately empty stomachs, and these 6, with one exception, were holding their own and in no case could free hydrochloric acid be determined. In 13 out of the 19 it was absolutely demonstrated that there was a considerable residual amount of food still remaining in the stomach. Butyric acid fermentation was marked in 6 and in 2 in which the stomach was apparently empty there was found a trace of butyric acid. In 7 cases examined at the end of 3½ to 4 hours 5 were surely empty; of the remaining 2 cases one showed many curds at the end of 4½ hours, while the other showed only a few small curds. Few if any of the children were normal and conclusions drawn from the cases had value only as a study in the nourishment of a feeble child. There is little doubt that in a large majority of cases the feeble infant with digestive disturbance is fed at too frequent intervals; too often a second feeding being given before the previous meal has passed through the pylorus, with the result that each successive feeding is contaminated; in the feeble infant gastric motility is greatly decreased and it is often necessary to increase the intervals between feedings. There is an analogy between this state in the infant and the condition known as myasthenia gastrica in the adult, an important element in the treatment of which is to make certain that the stomach is never overloaded. The form of the protein has frequently an important place in the management of infants and changing the form of the carbohydrates also frequently shows a marked effect in the infant's progress.

In 20 cases I tried Finkelstein's method of feeding, based on the idea that instead of the fat or protein being the usual cause of trouble most digestive disturbances are due to the sugar of milk, and the principle of the new method being cutting down of the amount of milk sugar and of the salts, adding in place of this casein and fat, and substituting other forms of carbohydrates for the milk sugar. They were all hospital cases and presented the usual difficulties of infants previously badly fed. The stools generally became grey, homogeneous, with putty-like consistence; there was usually a tendency to constipation. The results were not very promising. Eight gained slightly in weight while twelve lost. I believe that when benefits follow this method of feeding the results are due more to the form in which the protein is given than to the lessened amount of sugar in the mixture. Judging from the character of the stools it might act well in certain forms of diarrhea.

Discussion on Infant Stomach

DR. F. S. MEARA, New York: Has Dr. Wentworth taken into consideration the relation of the fat to the quantity of hydrochloric acid? Does Dr. Cowie attribute the opening of the pylorus to the action of the acid on the gastric or duodenal side?

DR. A. H. WENTWORTH, Boston: In Dr. Veeder's cases were the periods of feeding continuous or not and did one period run into another? Also, was the percentage of fat per gram ascertained? Is the greater percentage of all the fats excreted in the form of soap?

DR. HENRY D. CHAPIN, New York: So far as the incubators or padded cribs are concerned, I prefer the cribs as I have found that the best incubators are not as good as the crib. I prefer a varying temperature to the steady temperature of the

incubators. I have never saved a premature infant without breast milk.

DR. ISAAC ABT, Chicago: I have been impressed with the discrepancy in results and various interpretations of those doing the chemical research work, though I believe that there would be important definite results ultimately. The dogmatic methods used in some quarters in making interpretations and attempting to make clinical deductions based on chemical results so far obtained is somewhat premature. Besides the chemistry of digestion there is a biology of digestion; the ultimate appropriation of the molecule and its combination with the cell is of more importance perhaps than the chemical details.

DR. SAMUEL L. BERNSTEIN, Cleveland: I agree with Dr. Chapin in regard to the advantages of the crib over the incubator; the electric heating pad with maternal feeding has been the means of saving a number of these premature infants.

DR. D. M. COWIE, Ann Arbor: I am inclined to believe that it is the action of the acidity on the duodenal side that has to do with the retention of food in the stomach.

DR. B. S. VEEDER, Philadelphia: The experiments extended over 7 or 8 weeks—the child being first put on a formula for 3 or 4 days. Soaps were not tested for separately, but we did compute the percentage of soaps.

DR. HENRY D. CHAPIN, New York: It is of the utmost importance to have the meals properly spaced, as otherwise there remains a residuum of food in the stomach to contaminate each successive addition of food. This constantly recurring contamination and over-burdening of the stomach resulted in fermentation and in time gastric dilatation with loss in tone of the muscular coats of the stomach, thus explaining how a chronic digestive disturbance may lead to the condition known as atrophy. I am in sympathy with Dr. Abt in regard to studying these questions along the idea of biology.

DR. JOHN HOWLAND, New York: The biologic question is largely hypothetical; it cannot be expressed in figures or in charts, and while very interesting it leads no further than to saying that in each individual there is an individual variation. Until the work was done in terms that could be expressed in figures there had not been a beginning.

Amyotonia Congenita

DR. J. P. CROZER GRIFFITH, Philadelphia: Ten years ago, Oppenheim in Berlin noticed a peculiar symptom-complex and reported a few cases but not in detail. These patients had a condition of flaccid palsy, which appeared to be congenital, varying up to complete paralysis, but no actual atrophy. He called this myotonia congenita. As the symptoms were so similar to myatonic congenita, I have called the condition described in this paper amyotonia congenita. I found in all 48 cases besides my own. In December, a child of 15 months was brought to me; no family history, except intemperance in both father and mother. A diagnosis of myolitis had been made. The mother said that the child had never been able to do anything with its hands; the position of the hands suggested tetany. Electric reactions did not give reaction for poliomyelitis or tetany, in fact no reactions could be obtained. Dr. Mills suggested that it was a case of myotonia and further investigation corroborated that. The child could not turn itself in bed; when seated in bed it flopped about in any direction; the head fell forward or backward, anywhere gravity took it. There was affection of sensation. Tendon reflexes were abolished; respirations were almost entirely abdominal, the respiratory muscles being affected. The child was thought at first to be very weak-minded. In four and a half months it has improved wonderfully. It can now take a biscuit in the hand and slowly lift it to the mouth and bite at it.

There seems to be reason to believe that the condition is congenital either in its manifestation or in its origin. It is an affection of the muscles not controlled by the cranial nerves. As to the pathology, there have been 8 observations more or less complete but no one has come to any positive conclusion. There was in most every instance loss of striation of muscles or less of nuclei. In some there was involvement of the anterior horns of the cord but this is not yet certain because the changes described were so slight. Spiller maintained that there was no change in the nerve centers. The disease must be distinguished from poliomyelitis and from hypertonia. Nothing much could be said as to prognosis. A number of patients have died from respiratory involvement. Treatment is hygienic, with electricity and massage. No Wassermann reaction was made in my case, but so far as I could learn there was no history or symptom of syphilis.

A Study of the Value of Brudzinski's "Neck Sign" and Contralateral Reflex in the Diagnosis of Meningitis in Infancy and Childhood

DR. J. LOVETT MORSE, Boston: Brudzinski in a paper on "the contralateral reflexes in the legs in childhood," published in 1908, drew attention to a sign which he found in tuberculous and epidemic meningitis, and occasionally in other conditions, but never in healthy children. This sign was a concomitant reflex of the leg on one side when passive flexion of the leg on the other side was made. He concluded that in connection with other signs such as Kernig's and Babinski's, it was useful in the differential diagnosis of meningitis. In a later paper, he stated that further study had confirmed him in his conviction of the value of this sign. In 1909, Brudzinski published another paper in which he stated that in meningitis passive flexion of the neck forward causes flexion of the legs at the hips and knees and a marked flexion of the legs on the pelvis. He found this sign in 20 of 21 cases of tuberculous, in all of 11 of cerebrospinal, and in 2 of pneumococcus meningitis. I examined 400 children, either well, or ill, with diseases other than meningitis, as to the presence of this sign; 90 were well; 150 suffered from disease of the respiratory tract; 90 had various diseases of the gastroenteric tract; 31 had diseases of the nervous system other than meningitis; the remainder had a variety of diseases, typhoid, nephritis, influenza, heart disease, rickets, purpura, scarlet fever, measles, etc. Neither the neck sign, nor the contralateral reflex was elicited in any instance. I concluded from the study of these 400 cases that Brudzinski and his followers are correct in their statements that neither the neck nor the contralateral reflex are present in well children or in those ill with diseases other than of the nervous system, and that these signs are very seldom seen in diseases of the nervous system other than meningitis. Their presence in an acute disease is strong evidence of meningitis; their absence does not exclude it. The diagnostic value of the contralateral reflex is less than that of the neck sign. They occur in all types of meningitis and so are of no importance in differentiation.

DISCUSSION

DR. MATHIAS NICOLL, New York, three weeks ago had a case in which he found the sign positive. When left an hour the child would give a decided contralateral reflex reaction, but if it was induced several times in succession there was much less marked reaction. He had also had an opportunity of trying it in a case of cerebrospinal meningitis in which he had been able to get a very positive response, though it varies in intensity.

AMERICAN GYNECOLOGICAL SOCIETY

Thirty-fifth Annual Meeting, held in Washington, D. C., May 3-5, 1910

(*Continued from page 1630*)

Officers Elected

The following officers were elected for the ensuing year: President, Dr. Reuben Peterson, Ann Arbor, Mich.; vice-presidents, Dr. John F. Thompson, Portland, Maine; Dr. John G. Clark, Philadelphia; treasurer, Dr. J. Wesley Bovée, Washington, D. C.; secretary, Dr. LeRoy Broun, New York.

Atlantic City, N. J., was selected as the place for holding the next meting.

Primary Carcinoma of the Female Urethra; Hematoma of the Broad Ligament Recurring with Pregnancy; Fibroid Tumor of the Ovarian Ligament

DR. WALTER P. MANTON, Detroit: Primary carcinoma of the female urethra is among the rarest of malignant manifestations; a careful search of the literature up to 1910 gives the reports of but thirty-five cases, including my own, and failed to reveal the report of a similar case of hematoma of the broad ligament recurring with pregnancy. The only

references to the occurrence of fibroids of the ovarian ligament which I have been able to find are the two cases reported by Doran in 1896. In both of these cystic cavities existed.

DISCUSSION

DR. REUBEN PETERSON, Ann Arbor, Mich.: I have had two cases of this rare affection, one of which I have previously reported. A woman on whom I operated four or five years ago had a carcinoma of the meatus which extended up into the urethra about half an inch. I removed it so radically that incontinence followed with subsequent prolapse of the bladder mucosa through the remainder of the urethra. The woman complained of this, and so I sewed up the opening and made an opening from the bladder into the vagina. Then she complained of incontinence. I did a colpocleisis and made an opening into the rectum. I reported this case at a meeting of the American Medical Association, but do so again now in order to give the subsequent history of the patient. That woman has passed her urine through the rectum ever since, and to-day she is as well and contented as one can be in that condition. I examined the urine two and a half years ago and she had no ascending pyelonephritis, which is interesting because it has been contended that where this communication is established with the rectum pyelonephritis will take place; but it has not occurred in this case. The second case of primary carcinoma of the urethra happened a short time ago. It looked like urethral caruncle. However, microscopic examination showed it to be primary carcinoma. In this case I removed about one-third of the urethra, and there has been no recurrence of the condition for two years.

DR. CLEMENT CLEVELAND, New York: I have had two cases of primary cancer of the meatus, in one of which I did a radical operation, and the disease returned. In the second case I resorted to the use of the actual cautery, and I believe that this treatment will afford permanent relief of such a condition when surgery is of little value. I have seen such positive results from radium in the hands of Dr. Abbe, not only in cases of cancer of the vagina, fascial cancer, cancer on the lip, gum, nose and ear, that I believe its application to cancer of the urethra would be of great importance. I feel very positive that if the radium is used in such cases we would see as good results in cancer of the urethra as in cancer of the lip, nose or the ear.

DR. J. RIDDLE GOFFE, New York: Did Dr. Peterson use the cautery in the removal of these growths?

DR. PETERSON: I did not.

DR. GOFFE: I have had one remarkable case of malignant urethral caruncle or primary carcinoma of the urethra. This was a number of years ago. The woman gave a history of having been operated on by Dr. William Lusk six years previously. She stated that Dr. Lusk told her at the time that she had cancer and he did not dare remove it, but that he would make a button-hole in the urethra to save it from irritation, and that this was the best he could do. For six years she was comparatively comfortable. She had control of the urine, but passed it through the button-hole in the urethra. At the time she came to me there was a cauliflower excrescence protruding from the meatus, which was of bright cherry-red color, exquisitely sensitive, and the source of constant pain. With the cautery I removed all the urethra and the surrounding tissue from the posterior angle of the urethra, taking all but one-fourth of the urethra at the neck of the bladder. She made a comfortable recovery from the interference, but inside of a year the disease returned with the greatest violence, involving all surrounding structures and becoming constitutional. She died with great suffering about a year after the procedure I had instituted.

DR. FREDERICK J. TAUSSIG, St. Louis: In a case of carcinoma of the urethra, that occurred in the practice of Dr. Dorsett and myself, the patient was kept under observation for a long time. I saw her in 1900, and at that time there was a caruncle, chronic urethritis, a retroverted uterus, and a relaxed pelvic floor. I operated for the retroversion and for repair of the pelvic floor, but did nothing further to the urethra. Three years later she returned with a history of bloody discharge for three weeks. She had been examined two months previously by an experienced man and nothing had been detected so far as the urethra was concerned. I found an infiltrating cancer involving the lower part of the urethra. Operation consisted in removing the entire urethra to the point of its entrance in the bladder, putting a purse-string suture around the opening that was left in the bladder so as to strengthen the muscular tissue there, and then, as a further precaution, removing the external inguinal glands on both sides, although there was no glandular enlargement at the time. The patient made a good recovery from the operation; there was slight partial incontinence. She was kept under observation for 9 months, and then small nodules were noticed in the inguinal region and also about the internal iliac vessels, the triangle between the external and internal iliac vessels. A second operation was done, removing these affected glands, although difficulty was experienced in removing the disease about the iliac vessels on account of adhesions. A year and a half after the primary operation the patient returned with recurrence in both inguinal regions and higher up about the aorta. She was kept at the Skin and Cancer Hospital 2 or 3 months under trypsin treatment, which at that time seemed to offer a possible excuse for its use, and with no benefit. She died, and at autopsy there was absolutely no recurrence at the primary site. The tissues about the urethra and bladder were absolutely free from carcinoma; but the glandular involvement was not merely confined to the lymphatics; it involved also the liver and spleen.

DR. SETH C. GORDON, Portland, Maine: A woman of 70 had a growth for nearly a year about the urethra, and at the time she came under my care she had been treated by caustics for 6 or 8 months. The growth was as large as a walnut and bled on the slightest touch; I removed it with three-quarters of an inch of the urethra, bringing the remainder down and attaching it. The operation was done 4 years ago and there has been no return. Examination showed the growth to be carcinoma.

DR. HIRAM N. VINEBERG, New York: Some years ago I had a case of primary carcinoma of the urethra involving the anterior third of the urethra. I did a thorough operation, went close to the vesical sphincter, and as a result there was slight incontinence. Prior to operation the woman had no pain or bleeding. Microscopic examination proved the growth to be carcinoma. I did a plastic operation later and in trying to build up the artificial urethra and bringing the stump of the urethra forward was only partially successful. The woman could retain urine while in bed for an hour or so. She was under observation three years and during that time there was no recurrence. I have not heard from her since. At that time I collected eleven cases of primary carcinoma of the urethra.

DR. FRANCIS H. DAVENPORT, Boston: I saw a patient who had been under the care of a woman practitioner, who had tried the injection of serum for this condition of the urethra, and with some comfort to the patient, but not an arrest of the disease. When I saw the patient nearly one-quarter of the urethra was involved, so that it seemed absolutely impossible to remove everything radically. Radium was tried for several months, but not so thoroughly as the surgeon would like to have used it, owing to the fact that it could not be applied in the urethra itself on account of severe pain, but only externally from the vaginal side. Finally the growth became so large that there was retention of urine and a suprapubic fistula had to be made, which relieved the immediate symptoms, but within three months she died from exhaustion.

DR. I. S. STONE, Washington, D. C.: Next to the report of individual cases it is essential to know something about how wide the excision should extend, and how far the malignant process extends when we begin to operate on patients with early manifestations of carcinoma of the urethra. All the cases of cancer in this region in my experience have ultimately resulted fatally.

DR. JOSEPH BRETTAUER, New York: I have repeatedly had patients sent to me with a diagnosis of carcinoma of the urethra, in whom microscopic examination showed the lesion to be urethral caruncle. At times it is very difficult to decide whether the growth is malignant or not; as a rule, the younger the patient, the more malignant the growth.

DR. EDWARD L. DUER, Philadelphia: Recently I did an extensive operation for a carcinomatous growth of the urethra

which extended well into the end of the vagina. It was difficult to operate without enlarging the opening nearly into the rectum. I removed the growth and the wound healed. The condition returned in a short time after the operation, and I applied the *x*-ray to the external parts, but in the course of a few months the disease returned, and radium was tried. I commenced with a weak preparation, and it seemed to have little or no impression. The strength was then increased 100 per cent., and the patient improved and has continued to improve. Previous to this treatment she had been confined to bed for nearly a year. She had to be carried to the country and could not walk. She now goes shopping, and seemingly is perfectly well so far as the last examination showed.

DR. W. P. MANTON: I wonder whether or not all the cases so reported are really cases of primary carcinoma of the urethra. There are many cases of periurethral carcinoma that are mistaken for urethral cancer, and no doubt some of them belong to this class.

Improved Operation for Extreme Cases of Procidentia and Cystocele

DR. J. RIDDLE GOFFE, New York: Procidentia and cystocele are the results of three lesions: first, a descent or relaxation of the supports above; second, laceration of the perineum to the second degree; third, stretching and tearing of the fascia at the base of the bladder, producing a hernia. The support below is only indirect and of secondary importance. The true principle of support is that of suspension, and in order to secure a permanent result after operation the organs must be suspended or hung from above. The broad and round ligaments and the fascia lata are the proper tissues to utilize for this support. As a rule, these conditions obtain in patients at or beyond the menopause. In child-bearing women, especially if they desire children, the uterus should be carried into normal position and retained there by shortening the uterosacral and round ligaments. The bladder is then freed from all attachments to the vagina and lateral structures and carried up and spread out over the face of the uterus and broad ligaments. The vaginal sheath and wall are then cut away in the median line sufficiently to bring it up snug against the base of the bladder when stitched from side to side. If the perineum is torn to the second degree and a rectocele is present, the floor of the pelvis is restored. In patients at or beyond the menopause the uterus is removed, the broad ligaments beginning with the round ligaments at their upper borders are then stitched together across the pelvis from side to side, from the round ligaments down to the cardinal ligaments, thus turning the raw edges of the broad ligaments posteriorly. On the plane of tissue thus constructed, the bladder is spread out and stitched in such a way as to carry the organ high in the pelvis, thus restoring the base of the bladder as it is originally to a comparatively immobile foundation, and restoring the hinges and the cornua of the bladder as so graphically described by Dr. Kelly. The upper end of the vagina is also stitched to the broad ligament, bringing it up taut against the base of the bladder, the fascia lata is cut away and stitched as previously described and the perineum repaired. To accomplish this work it is necessary at the beginning of the operation to make a longitudinal incision in the vagina along its anterior wall throughout its entire length and dissect the bladder freely from all its attachments. The results in my opinion are satisfactory and permanent.

DISCUSSION

DR. CHARLES JEWETT, Brooklyn, N. Y.: I have had the privilege and pleasure of watching Dr. Goffe do this work, and his technic is the most complete and perfect of any I know. He concludes the operation by securely building up the perineal buttress beneath the bladder.

DR. I. S. STONE, Washington, D. C.: This method, or a slight modification of it, has given me the utmost satisfaction. I have no knowledge of any case of cystocele or prolapse having recurred if the work has been properly done.

DR. HENRY T. BYFORD, Chicago, described a modified operation which he does in these cases.

DR. SETH C. GORDON, Portland, Maine: I am satisfied that all of the work we have done heretofore in the effort to fix the uterus, after complete procidentia, has been of little avail. The uterus gives way after a while. Recently I have been removing the uterus in every case and stitching up remnants of the vagina to the broad ligaments, and fixing it as well as possible. I believe that we open a new line of work in that direction when we begin by removing the uterus.

DR. CLEMENT CLEVELAND, New York: I have followed the operation described by Dr. Goffe for some years. In my hands it has been successful in the majority of cases.

DR. C. C. FREDERICK, Buffalo, N. Y.: I have been doing this operation for 4 or 5 years, and I have taken the position that in case of advanced procidentia the removal of the uterus, as a part of the operation, is the *sine qua non* to success. I have done 75 or 78 of these operation for procidentia, and have invariably used catgut for suture material and have not had any ill results from it.

DR. J. M. BALDY, Philadelphia: This operation is so extensive in its denudative qualities and so dangerous in its possible results as to be absolutely unwarranted as a simple cystocele operation.

DR. LEROY BROUN, New York: I have often seen Dr. Goffe do this operation. I have done it myself, and I have had the privilege of seeing one of the patients on whom Dr. Goffe operated, and a more ideally perfect result I have never seen. The uterus was in excellent position.

DR. GEORGE GRAY WARD, JR., New York: Dr. Goffe taught me this operation five or six years ago, and since then I have done it in several instances. The results speak for themselves; I have not seen a failure from the operation when it has been properly done. The patient is satisfied, and that is the best part after all.

Intramural Sequestration and Fixation of Uterus for Prolapse When Pregnancy Is Not Possible

DR. PHILANDER A. HARRIS, Paterson, N. J.: I have subjected six women to a possibly novel procedure for the cure of procidentia uteri, and since these operations have been followed by gratifying results, I wish to describe the operation for whatever value it may possess for others. A median abdominal incision is made from one inch beneath the umbilicus for three or four inches, and through it the uterus is delivered. While an assistant grasps and draws the uterus well out of the incision, the cut edges of the parietal peritoneum are sewn to and around the uterus at the junction of the cervix with its corpus. This sewing crosses the broad ligament at either side about two inches away from the fundus uteri. After thus attaching the opposing cut edges of the peritoneum to the uterus and the broad ligaments, the suturing is carried upward to the top of the incision, thus closing the peritoneal cavity with the corpus and fundus still held in the grasp of the assistant, and, of course, outside of the peritoneal cavity. While the assistant continues to hold the uterus outside of the incision, a 5/16-inch iodoform gauze and rubber tissue drain is placed on top of the muscle and beneath the fascia to a point two or three inches to one side of the incision, at which point it is made to emerge from a small stab wound. The tapering tail of this drain is placed in the wound between the peritoneum and fascia. The anterior surface of the corpus and fundus uteri are next denuded with a knife, after which the fundus is seized with a hook or volsellum forceps, with which it is dragged upward as far as possible toward the umbilicus, and made to nestle in the incision anterior to the peritoneum and between the recti muscles. The fascia is next sewn from the umbilicus downward with running stitches of chromicized catgut. Wherever the corpus and fundus uteri are in contact with the fascia as it is being closed, the stitches are made to include sufficient musculature of the uterus to fix it in its sequestered position. The sewing of the skin with a running catgut suture completes the operation unless the patient is obese, in which case a small drain is placed between the fascia and the skin and made to emerge from a stab wound two inches or more to one side of the incision. The application of the usual gauze dressing and adhesive straps completes the operation. The draining tubes are partly withdrawn in two or three days, but generally not removed until ten days or more after operation.

(To be continued)

AMERICAN GYNECOLOGIC SOCIETY AND AMERICAN SURGICAL ASSOCIATION

Joint Meeting, held in Washington, D. C., May 5, 1910

What Are the End-Results of Surgery for Relief of Neurasthenic Conditions Associated with Various Visceral Ptoses?

To What Extent Do They Improve the Neurasthenic State Itself?

DR. EDWARD REYNOLDS, Boston, in opening the discussion took up the etiology of the ptoses and their relation to neurasthenia. Satisfactory end-results depend on a successful initial study of the causation of the individual ptosis, and of its consequent relation to the neurasthenia. Technic is a subordinate matter. Ptosis is never a primary affection, but is always secondary to some other condition. The causes of ptosis are (a) local anatomic or developmental anomalies, and (b) general systemic mechanical conditions. The local causes of ptoses of pelvic viscera are inflammatory lesions, trauma, high rectovaginal septum, persistent ileolumbar ligament, and antiflexion of the cervix. Operations should be adapted to these causes. The general predisposing causes of all ptoses are (1) general muscular relaxation, and (2) static abnormalities, such as the round shouldered, hollow-backed position, pendulous abdomen, the over-feminine figure, and the habitual use of bad corsets. All these static variations are characterized by a forward displacement of the center of gravity. The mechanics of adjustment of posture are comprised in the use of therapeutic shoes and corsets. Mechanical therapeutics is always necessary in static cases. Ptosis is sometimes the result of neurasthenia, sometimes its cause. The main guide is the relative chronologic sequence of local and general symptoms. It is important to avoid operation in neurasthenics unless complete relief of the local symptoms can be expected. Subsequent care is important.

DR. JOSEPH A. BLAKE, New York: Patients suffering from visceral ptosis and neurasthenia should be divided into two classes. First, those in which ptosis of the organ or organs contributes to the neurasthenic state simply by the effect produced on the organs themselves. In this category we have displacements of the kidney, uterus, colon, stomach, etc. The results of operations on this class are dependent on the degree in which the condition affected the neurasthenic state. In the second class of cases a vicious circle is established, and ptosis increases the neurasthenic state if it is not the underlying cause. Operations undertaken on patients of this class must have in view the relief of the autointoxication, otherwise they will only be productive of harm. Partial or total exclusion of the colon is a rational procedure in certain cases and good results may be expected, but the greatest care should be exercised in the selection of cases for applying this operation.

DR. JOHN G. CLARK, Philadelphia: We have a defective individual, as a rule, to deal with from the start, and as the result of this defect we cannot hope for the same surgical results as we would get from operating on patients with acute diseases. The individual perhaps has had autointoxication from the beginning, or was imperfectly developed from the start, and therefore a bad surgical subject for immediate or ultimate results, and it is particularly in this class of cases where surgeons should make haste slowly. In the last five or ten years I have tried various types of suspension operations in visceral ptoses, such as the Coffey or the Deyea type of operation, and have not had more than 75 per cent. of functional relief after following these cases carefully. In those cases in which there is a structural defect, as shown by obstructive and retention symptoms, one does not hope to get more than 50 per cent. of functional relief.

DR. MAURICE H. RICHARDSON, Boston: I approach the treatment of the neurasthenic for whatever cause, whether a definite, unmistakable pathologic lesion, or a ptosis, or a slight lesion, like a displacement of the kidney, with the utmost discouragement. One of my recent cases was a woman whose abdomen was covered with scars from repeated operations that had been performed without relief, her last state being worse than the first. Finally, it was found that this woman's gall-bladder was full of gall-stones, which were removed, followed by relief. As to enteroptosis and operations for large dilatations of the intestine, I can recall examples of cases in which I was driven to operation after these patients had gone to the neurologist, the gynecologist, and the general surgeon, and had been treated by them without relief, but with the same general results of discouragement. In one instance, 8 or 10 years ago, I resected the large intestine 2 or 3 times with the hope of affording relief, but the patient was in the same neurasthenic condition as in the first place. In addition to the operation on the intestine she had developed a large ovarian cyst, which was removed. Before operating on these patients we should be sure, in the first place, that there is a lesion; second, that it is the chief cause of the neurasthenia; third, we should see if it canont be cured without operation, but if operation is to be done, we should see to it that it does not subject the patient to too great a danger. I believe that neurasthenia is more of a disease than we give it credit for; that it is some central, organic or nervous condition on which operative surgery will have about as much effect as the surgical treatment of epilepsy, and Dr. Wood once said that it would do just as much good to amputate a toe as to resect the motor area of the brain for the relief of this condition.

DR. RICHARD R. SMITH, Grand Rapids, Mich., restricted his remarks to a general consideration of the etiologic factors to be considered in connection with visceral prolapse and accompanying neurasthenia in women who present themselves to the gynecologist for the relief of symptoms.

DR. LEWIS S. MCMURTRY, Louisville, Ky.: How often, after difficult manipulations in the abdomen in normal individuals, so to speak, do we leave in the haste of an operation the viscera disposed in every possible irregular manner, and yet these things correct themselves in normal individuals, and they necessarily have no connection with neurasthenia, so that we must have a little more evidence than we have at present that visceral ptoses are the principal factors in the production of this condition of the nervous system and metabolism of the body known as neurasthenia. As to the clinical side of the subject, my experience is like that which has been related by other surgeons. Operative procedures for all these ptoses, whether of the pelvic organs, the kidney, or the alimentary tract, have been unsatisfactory. Neurasthenia occurs in both sexes in all stations and all conditions of life, among the rich and the poor, and its exact nature or its pathology is as yet unknown, and until it is more definitely known the results are going to be as we see them reported at present. What we need is a definite statement as to the origin or cause of this condition which we know as neurasthenia.

DR. WILLIAM M. POLK, New York: In patients who present themselves with ptoses that have been described as belonging to the upper abdominal cavity, we have conditions that unquestionably we balk before, but here I am convinced that orthopedics furnishes a most efficient aid, and the lines laid down by Dr. Reynolds and by Dr. Lovett of Boston, who has been associated with him, will be the means of benefiting many of the conditions for which surgery heretofore has been considered the only means of relief. But the psychoneurologist should not be forgotten in connection with these cases. There is no reason why we as gynecologists and surgeons should bear all the burden in these cases. I have come to the conclusion that there is a conspiracy on the part of the neurologist to land on us a class of cases which he knows full well will test every particle of his acumen, and here is a brilliant opportunity for the psychoneurologist to exploit himself to the fullest extent. When these neurasthenics come to us we should say to them, first pass through the hands of a competent orthopedist; pass next through the hands of a conscientious self-doubting neurologist, but beware of the over-confident neurologist, and then you can say, madam, or sir, as the case may be, as you have reached the end of all things, so far as medical investigation is concerned, I am now more than willing to command all the resources of my refinement of the surgical art.

DR. A. J. OCHSNER, Chicago: I wish to subscribe to the axiomatic statements made by Dr. Blake in regard to the surgical treatment of these patients. There is no doubt but that neurasthenia can be greatly exaggerated or possibly caused by the results of enteroptosis, when these results produce obstruction either to the alimentary canal and interfere with nutrition

and cause autointoxication, or when the condition gives rise to obstruction of the ureter, or causes an accumulation of mucus in the gall-bladder, and secondarily causes gall-stones. The relief, after an operation in such cases, even though the neurasthenia was possibly caused by this condition, must be in most cases exceedingly unsatisfactory, and due to two causes. We do not mechanically relieve the condition, no matter how perfect the operation may be, except in a few instances, as, for instance, in draining and suspending the gall-bladder in removing a hydronephrotic kidney. Dr. Reynolds' presentation is along the line of observations I have made and which caused me to suggest prophylaxis rather than treatment in this way. Many years ago, in studying the treatment of hernia in children, I found that they were cured spontaneously, provided conditions were secured in which there was absence of abnormal intra-abdominal pressure and traction, by placing these children in a position with the foot of the bed elevated at from 15 to 30 degrees. I found that in children with pendulous bellies the recti muscles came together if they were shortened, that the oblique muscles were strengthened, and that the intestines, instead of hanging at the bottom of the pelvis, after a few months' treatment would be in normal position. I found that this enteroptosis had resulted from improper feeding, from gaseous distention, and from other sources of abnormal intra-abdominal pressure. In some of the cases the increased abdominal pressure was due to severe straining from constipation, and with the relief of this the enteroptosis was decreased to a marked extent. I believe that by overcoming the causes of enteroptosis in children, we will prevent its occurrence in many adults.

DR. HOWARD A. KELLY, Baltimore: I am convinced from the conclusive demonstration of Dr. Clark, Dr. Richardson and Dr. Lovett, that they have found the key to some of the underlying causes of these conditions, and that rational therapy is to be adopted on such general and orthopedic lines as they have outlined. I shall restrict my remarks to the various types of nervous systems associated with movable kidney.

Movable kidney is frequently found in neurasthenics. Movable kidney, associated with renal pain, may exist to such a marked extent as to bring on the neurasthenic state. The symptoms connected with movable kidney sufficient to justify operative procedure, are, as a rule, definite, and of a local mechanical nature. Psychotherapy is of little use as an adjuvant in treating neurasthenics and in relieving either local or general ptoses so long as a displacement of the kidney persists. On the other hand, psychotherapy and other forms of treatment which aim at building up the patient's general condition may seemingly effect a cure. In an analysis of 245 patients with nephroptosis, 78 or 31.4 per cent. had neurasthenia of varying degrees. I never operate on neurasthenic patients without definite local symptoms.

DR. WILLIS G. MACDONALD, Albany: Not all patients who suffer from ptsoses are neurasthenic. A large proportion of them do not present symptoms. In a number of these cases of neurasthenia associated with ptoses the responsible conditions are autointoxication from the intestinal tract and peripheral irritations from movable organs. I divide patients suffering from neurasthenia and ptoses into two classes. In the first class, we have those patients who travel from rest cure to rest cure, from one climate to another, and who are battle-scarred from their conflict with surgery. For this class surgery has no potency. There is no hope for relief from surgical intervention in such cases. On the other hand, there is a considerable group of cases in which the condition can be traced to an overloaded cecum and sigmoid—a constant filling of the intestinal tube, with a large, dilated myasthenic stomach lying on the symphysis pubis. Operation will relieve successfully a large number of such patients; yet unfortunately our clinical methods are not sufficient to determine always just which patients will be favorably influenced by surgical intervention and which will not, and in making statements to physicians and friends of such patients we should, as a matter of common honesty, express some doubt as to the ultimate results in this particular class of cases.

DR. JOHN K. MITCHELL, Philadelphia: The whole causation of neurasthenia seems to be bound up in a kind of vicious circle where one symptom produces another until one positively cannot disentangle the chain. What do we know about the normal relations of the abdominal organs? What do we know about the position in which the various organs in the belly ought to be in the ordinary upright posture which we maintain a large part of the time? How much mobility should such organs as the kidney and liver have? Apparently, from the manner in which the intestines are distributed in the belly, they are not placed there like articles on a shelf to be maintained in one position, but they possess a certain amount of mobility. I see few neurasthenics in whom the kidney does not have more or less play, and slightly movable kidneys sometimes give worse symptoms and cause more trouble than freely movable ones, and a floating kidney, unless it results in a twisting of the ureter and stoppage of flow of urine, causing pain in the ureter and in other portions of that neighborhood, does not produce so much symptoms as the kidney that is only slightly movable, one in which it would be difficult for the surgeon to determine whether it is movable or not. Before operating on a neurasthenic patient the surgeon should have a definite idea as to whether or not a pathologic condition exists, what he is going to do and what he hopes to accomplish by the operation; otherwise the results from surgical intervention will be unsatisfactory.

DR. WILLIAM J. MAYO, Rochester, Minn.: I agree with Dr. Clark that the patients we have under discussion are wrong from the beginning, and my own feeling is that but a small number of them should be treated surgically. For some years at Rochester we have made a careful examination of all patients who presented themselves, no matter whether they had cancer of the breast or gall-stones, or what not, and to our surprise we find that about 25 per cent. of the women had retroposition of the uterus. We did not find that retroposition of the uterus was more frequent in the latter decades of life. Even young girls who came to us, in whom pelvic examinations were made through the rectum, had retroversion of the uterus in about the same proportion of cases as those women who had reached the menopause. Again, we found that 20 per cent. of the patients who came to us had movable kidney, and a very large majority of them did not have any symptom whatever. I think the neurasthenics, from a surgical standpoint, should be treated like the insane, in that we should take no cognizance whatever of their general complaints, but if they have sufficient local pathology to warrant operation we should operate on them, as we have no right to deny them the relief that comes from surgery. Doubtless many of these patients would be benefited by the Emmanuel movement or by Christian science, and many of us would gladly turn them over to a Christian scientist if we were convinced that the Christian scientists were really Christians, because it takes a Christian to handle these patients.

FLORIDA MEDICAL ASSOCIATION

Thirty-seventh Annual Session, held at Jacksonville, April 6-8, 1910

(*Concluded from page 1632*)

Diagnosis, Clinical Types and Treatment of Uncinariasis

DR. D. L. MCSWAIN, Arcadia, discussed in his paper particularly those marginal cases of uncinariasis which are easily mistaken for other diseases, resembling many times acute malaria; those cases complicated with malaria; the value of the stethoscope in diagnosis; the danger from pulmonary edema following the administration of thymol in acute nephritic cases. An infant 11 months old, with no history of ground-itch, four months previous to treatment showed indications of anemia accompanied by occasional ileo-colitis. Microscopic examination for uncinaria ova was negative. With the aid of the stethoscope a diagnosis of uncinariasis was made. Hemoglobin less than 15 per cent., respirations 80 to 100 per minute. Three courses of thymol were given and at the end of six weeks the child was normal. A point of interest under the head of prophylaxis that should be settled by the pathologist is whether the *Uncinaria radiata* pro-

duces in the human the local manifestation of the disease, and if so, whether or not it is carried to the intestines, producing the systemic symptoms. It is a well known fact to every one who spent his childhood in the country that about cow lots is the greatest danger of becoming infected with ground itch.

DISCUSSION

MR. RAMSEUR, Ph. G.: In the infant of 6 months, what was the source of infection by hookworms?

DR. D. L. MCSWAIN, Arcadia: In my opinion the infection was acquired by the child crawling on the floor. In the family where this case occurred the grandfather was sixty-five years old and the entire family were hookworm sufferers. I don't think for a moment that ground itch is the only source of infestation. There are too many evidences that it is not so.

DR. HIRAM BYRD, Jacksonville: A feature of the case cited especially interesting was the fact that it did not show any evidence of hookworm on microscopic examination. When we remember that the larva finds its way into the intestinal tract either directly or through the circulation it is from six to ten days before the eggs appear in the stools. I wonder if that is not an adequate explanation of the absence of ova in an acute case of hookworm infestation.

Occurrence of Intestinal Parasitic Infections Among the White Patients at the Florida Hospital for the Insane

DR. RALPH N. GREENE, Chief Physician, Florida Hospital for the Insane, Chattahoochee, reported in his paper, that "among 220 white men there were found 92 cases of uncinariasis, or a percentage of nearly 42. The 187 women examined showed a total of 87 cases of hookworm infection, or a percentage of nearly 47. Four per cent. more women than men show hookworm infection in this series. These results show for the total number of cases in the white departments of the hospital, a percentage of nearly 44. . . . It may not be inappropriate to state that 42 cases not showing hookworm infection, or a percentage of even ten, were infected with other forms of intestinal parasites, namely, *Trichocephalus trichiurius*, *Oxyurius vermicularis*, and *Ascaris lumbricoides*. Taking these other forms of intestinal parasites into consideration, in the computation of percentages, would reveal the surprising result that among the 407 cases examined, were found 221 cases of intestinal worm infection, or a percentage of 54. Roundworms were found associated with hookworms in two cases, one of these being in each sex. *Trichocephalus dispar* infection was noted with uncinariasis in 26 cases; sixteen among the women and 10 among the men. Triple infection was noted in three cases, all of whom were men, the parasites present being *Uncinaria americana*, *Ascaris lumbricoides* and *Trichocephalus trichiurius*. . . . Among the patients in this series are noted an actor, mechanic, housewife, educator, farmer, congenital deficient and several graduates from leading colleges and universities. . . . Cases are to be found in the different types of insanities, from the lowest to the highest form of psychosis. The congenital idiot, the simple dement, the precocious dement, the senile dement, manial-depressive cases, the morphinomaniac, the paretic and the paranoiac, all show a fairly equal distribution of the infection. It has been noted among the cases infected that no matter what the form of mental disease may be, depression exists, and those cases which ordinarily should show evidences of excitability and elation, are depressed and melancholy."

A Plea for a More Vigorous Campaign Against Malaria

DR. GRAHAM E. HENSON, Crescent City, under the above title, addressed the Association with a desire to "stimulate an interest that will result in a decrease of the scourge that constitutes such a large percentage of the morbidity in our Southern states." The education of the public, the destruction of the mosquito in larval and adult stages, the prevention of the development of the plasmodium in man, and the entire eradication of the parasite from an infected blood stream with isolation of the individual in so far as possible, were the classified prophylactic measures and methods stated as being necessary in a campaign to stamp out the infection.

DISCUSSION

DR. J. H. PIERPONT, Pensacola: In regard to the destruction of mosquitoes: During the yellow fever epidemic at Pensacola in 1905 I was city health officer and war was waged against the mosquito, primarily, of course, to stop the yellow fever. We found mosquitoes breeding in every conceivable place: little cups of water in the trees; in vases of broken crockery used in cemeteries for flowers; in roof gutters where limbs of trees had fallen and made dams, and only a few teaspoonfuls of water were necessary to breed many mosquitoes. We could find them everywhere. The war against them was waged successfully. That fall we destroyed practically all the mosquitoes and breeding-places in Pensacola. The city had charge of the work. We oiled large pools of water. In the ensuing summer Pensacola was practically free of mosquitoes. The people who had screened their houses the summer before and who screened them the next summr, who had mosquito bars put in in great numbers, in the middle of the summer of 1906 found no need for them. The screening around many of the porches was removed. But I am sorry and ashamed to speak of the blunder made in the following years in not continuing the work. Only $200 a year would be necessary to keep Pensacola free from mosquitoes; the city was urged to make the appropriation, and I urged it, but nothing was done. The next year (1907) we had mosquitoes, and there are more now. We had no malarial fever during the yellow fever epidemic, nor within the following two or three years, but it is now beginning to show up in the city and suburbs.

SYMPOSIUM ON PELLAGRA

DR. J. H. RANDOLPH, Tallahassee: "The Nervous and Mental Symptoms of Pellagrins and What Can Be Done for Them."

DRS. G. J. WINTHROP and H. P. COLE, Mobile, Ala. (by invitation): "The Value of Transfusion in Pellagra."

DR. RAYMOND C. TURCK, Jacksonville: "Pellagra Complicating a Laparotomy."

DR. G. J. WINTHROP presented the conclusions of himself and Dr. Cole based on studies by Lombroso, Babes, Tizzoni, Antonini and Gatti, and Marianni, that (1) Pellagra is an intoxication; (2) the toxic principles of pellagra exist in the blood of pellagrins and will produce pellagrous symptoms when transferred to other animals; (3) pellagrous serum exhibits definite precipitative, hemolytic and antitoxic properties; (4) an active immunity exists in cured pellagrins and an immunity can be artificially produced in animals.

"Our employment of transfusion in pellagra followed a series of laboratory experiments on blood transfusion in surgical shock in animals and was undertaken with the idea of combating the severe anemia noted in terminal pellagra cases and perhaps of transferring specific antibodies. The results obtained in this first transfusion, performed at the Mt. Vernon Hospital for the Insane, were so gratifying that we were led to try its value in other cases. The histories of twelve cases so far transfused are briefly cited. We would note that in a number of these cases we have been unable to secure donors recovered from pellagra, and healthy individuals, usually close relatives, have been employed. We believe that these non-pellagrous donors, chosen from individuals living under the same environment, eating the same food, and subject to the same possibilities of contagion, probably possess a certain amount of natural or acquired immunity.

"Of the 12 cases transfused six are dead and six are apparently recovered for periods of from five to twenty months. It must be considered that in these transfused cases every possible medical measure had been fully tried, and only continued downward course finally impelled transfusion. A mortality of 50 per cent. in such cases we consider low. It may be noted that of the six fatal cases three were evidently hopeless before transfusion. The seemingly remarkable results obtained in some cases have led us to attempt the operation in all cases, even though considered hopeless. We believe that earlier employment of transfusion would yield decidedly better results, at least it would furnish more reliable data on which to base an opinion as to the true value of transfusion.

"Feeling that transfusion is as yet in an experimental stage, we make no claim as to its final value. Our clinical and experimental experience suggests the following conclusions:

"1. A serum therapy will finally be established in pellagra. Until the perfection of this serum therapy transfusion may be offered to combat the existing anemia and possibly may be the means of transferring a degree of natural or acquired immunity.

"2. In certain selected cases, not benefited by medicinal agents, transfusion has been followed by immediate temporary and possibly permanent recovery.

"3. Without a thorough knowledge of the technic and dangers of the operation, or if the procedure is applied without careful selection of cases and donors, it will certainly be brought into an undeserved ill repute."

DISCUSSION

DR. G. L. WINTHROP, Mobile: In a large number of cases the nervous manifestations seem to appear first. With the average case I believe the extraordinary intestinal symptoms first show, then the characteristic dermatitis and then the terminal stage of the disease showing the poisoning of the nerve cells themselves. In a certain number of cases nervous symptoms do show first and prior to the characteristic dermatitis. In these cases I think we should observe particular care in diagnosis. In the early cases where the patient has been gradually losing strength and weight for a month or more these nervous symptoms may be neurasthenic. I have noticed one particularly in which the patient, a woman, was sent to us as a possible pellagrin. The nervous symptoms were present. She was treated first as a purely neurasthenic or nervous patient and confined to bed for a while, but one morning she was put on the porch for the fresh air treatment and was exposed to the direct rays of the sun; the next morning there was noticed on the dorsal surface of the hand the characteristic dermatitis, the earliest eruption in pellagra I had seen. That made us rather positive of the diagnosis, and shortly afterward she developed other typical symptoms of the disease. All of our cases exhibited nervous symptoms. Attention has been called to the number of cases which are called *sine* pellagra; that is, without the pellagrous eruption. I believe there are cases which we should diagnose pellagra without the typical secondary symptoms, the nervous symptoms or the extraordinary intestinal symptoms. Particularly in those case which have been confined to the house and not exposed to the direct rays of the sunlight which seems to be necessary to bring out this pellagrous dermatitis. I believe that if we observe these cases which come to us showing nervous manifestations first we will be able to show that a large number of them are cases of true pellagra and not cases of that indefinite neurasthenic diagnosis.

DR. R. L. HARRIS, Jacksonville: I had occasion to examine a patient the other day, over the abdomen, and breast, and found a number of brown, distinct spots; the woman was afraid of pellagra. These spots had been appearing for years; none have disappeared; she is absolutely well, not nervous, no intestinal symptoms. What is thought about this development?

DR. J. H. RANDOLPH, Chattahoochee: Without other symptoms, I would not feel justified in making a diagnosis of pellagra in that case. I think it better to look for some other explanation of the condition. Dr. Turck's paper was interesting to me because of the question of operations among the insane. It is a question that has agitated the mind of those having the care of the insane, more or less, at different times, and I feel that it probably shows the utility of resorting to operations to those presenting symptoms, with the hope of effecting relief from harmful abdominal or pelvic disorders. Cases have occurred in which such operations have been of good effect and the symptoms found to be quite resistent to any other means of relief. Some one has asked me whether in these cases of transfusion it is customary to operate more than once. Some of the cases which did not have such favorable results apparently gave variable symptoms after the first operation, and the question naturally arises whether further operative procedure was taken with the view of adding to the benefits already derived. I go a little further than Dr. Winthrop and am inclined to think that these nervous symptoms are almost always among the first presented. The treatment by transfusion appeals to me as the treatment *par excellence* in such cases, not only in the later stages, which, as I have said, is the only procedure of benefit, but in the earlier stages. Of course, I feel we should appreciate the fact that it is an operation or procedure which should not be undertaken by inexperienced hands.

DR. G. J. WINTHROP, Mobile: In two cases referred to in my paper, one, a male, aged 42, very little blood transfused, showed slight improvement, but this did not continue and patient died a month later. The other, a woman, aged 22, showed some improvement after first transfusion. We did second transfusion because we believed she had not received a sufficient quantity of blood. At the time of the second operation some time had intervened and her condition was such that we noted no improvement afterward. Very few of the patients have been transfused more than once, because the cases were so severe when we saw them that they either began to improve in a few days or were in such condition that transfusion absolutely afforded no help. On several occasions there has been marked edema after the operation. In the cases in which improvement was noticed by gain in weight, there was a disappearance of anemia and general better attitude of the patient. We have found that unless this change for the better takes place within the first week, that the case usually goes on to fatal termination. The question of donors has given no end of trouble. When only a few patients recover from the disease out of a large number, it is difficult to get donors. At present we have but two cured individuals who act as donors and we have nearly used up the strain from these patients and have to go elsewhere for blood. Usually relatives of the patients do as well. We undertake the operation willingly with healthy adults, being careful of the history of other communicable diseases, and have found the results in those cases to be very good. Transfusion in pellagra is in the experimental stage. We make no positive claims for the operation. We intend following up the subject and whatever conclusions we come to will be given to the profession and we will acknowledge publicly either the mistake or the success of the transfusion method.

DR. J. H. COLSON: I wish to mention a case which might perhaps throw some light on the etiology of pellagra. We have had some interesting discussions on hookworm disease, and I refer to that in order to convey the idea that I wish to express in this instance. About a year ago a German, aged 20, from a poor family, poorly nourished, hygienic conditions bad, was placed in the hospital. When I first saw the boy he was anemic, abdomen distended, edematous. I thought he had Bright's disease. His urine was tested for albumin with negative results. A microscopic examination revealed nothing of consequence. I next thought of uncinariasis and put him on treatment for that. He responded readily and began to improve materially. After I had given two or three courses of hookworm treatment, I put him on a supporting tonic. Color began to return, his strength increased, and he was discharged in six weeks as cured. He could take care of himself and do considerable light work incident to farm life. He was out of the hospital only a short while when he developed an eruption on his hand, back of his neck and face; in fact, on all surfaces exposed to the sunlight, very much like a burn of the first degree. That condition prevailed for some days and became intensified, and his color changed to more of a dark or leathery tint. After a month or six weeks' treatment, he again became normal. What was this eruption? I was of the opinion that it might be a kindred disease to pellagra. Will hookworm disease superinduce pellagra or will it be a contributing factor in the disease? I simply state this to show that in my experience hookworm disease and pellagra may be associated or that the two can exist simultaneously. There is no question in my mind but that this was a case of pellagra associated with hookworms. There were no nervous symptoms to any noticeable extent.

DR. J. H. RANDOLPH, Chattahoochee: I think Dr. Colson is on the right line. At the Hospital for the Insane we have made a similar diagnosis of a case of pellagra associated with hookworm disease. Many of us no doubt have failed to recognize pellagra in the past. The reference to sunburned condition recalls some cases reported at the Illinois State Hospital. I heard an address at the Pellagra Conference last fall in which

the physician in charge there spoke of a condition existing among his patients and having not recognized it he first attributed it to burns for which he had discharged several of his hospital attendants, thinking they had been careless with the patients. Particular remedies applied in the early stages of pellagra bring magnificent results; whereas, if it is left until the last stages there are no such good results.

DR. E. PORTER WEBB, Ponce de Leon: Less than two years ago a patient came from Alabama to my office in the western part of the state, showing typical symptoms of hookworm disease. I put him on treatment and rid him of uncinaria, but in about a month he too had developed a case similar to what Dr. Colson reported; hands and face appeared as if burned, or as if iodin had been used on them; in fact, all surfaces exposed to the sun were in this condition. He had been kept in the house for a while, and then when he got outside this eruption developed. Not being acquainted with pellagra, I made no diagnosis, and the patient died. It seems that pellagra is inclined to follow hookworm disease.

DR. HIRAM BYRD, Jacksonville: To some extent transfusion has been employed elsewhere, and it seems a thoroughly rational method of treatment; probably when we arrive at a complete and satisfactory method, it will be in that direction. If not, some light will have been thrown on the subject nevertheless, and we will be aided in reaching the disease. But the phase of pellagra which is perhaps most interesting and on which most people keep silent, is the etiology. While the cornbread theory has popped up all over the country, still I fear it has put the profession in a wrong light before the people in general. There had been enough said about cornbread and pellagra in the public press and in a general way to give everybody the one idea, or to give the laity, with few exceptions, the idea that the whole medical profession attributes pellagra to the use of cornbread. So far as I understand, at the present time the evidence is totally inadequate to fix the etiology in any direction, and I think it is a serious mistake for the medical profession to commit itself at the present time to any theory. There is no conclusive evidence in that direction, and it appeals to me as a mistake which may have to be regretted and one which we may have to back down from.

DR. G. J. WINTHROP, Mobile, Ala.: Lavinder, in one of the publications of the U. S. Public Health and Marine-Hospital Service, has, I believe, rather concisely stated the existing theories as to etiology. He accepts the old classification, the broad one, of two groups: the zeists and antizeists; one claiming a definite relation between Indian corn and pellagra; the other denying this connection and believing that pellagra is simply a symptom-complex occurring in various alcoholics, insane persons and chronic diseases. I cannot but believe that Indian corn bears some relation to pellagra, and I believe that the general opinion of the country is in favor of some relation between Indian corn and pellagra. The work of the Illinois State Board of Health along this line promises a great deal of good. They went to work in a scientific manner, worked on it a number of months during the summer season, made careful blood examinations, examined the supplies of corn, and out of this came the conclusion that Indian corn bears some relation to the disease. I gather from some correspondence with the Italian physicians that there is a feeling among them that pellagra is a specific infection due to some microscopic organism, probably. I agree with Dr. Byrd, however, that the cornbread theory cannot be positively accepted now. I have had one or two patients who positively deny eating cornbread at all. One was a boy of 8, a definite case, with eruption on the dorsum of both hands, severe stomatitis and diarrhea; he had the disease three years. In Mexico, where cornbread is very common as an article of food and pellagra is almost unknown, the people keep the cornmeal in ovens before eating, thereby killing any organism present. In Italy ovens have been established where the disease is more prevalent, and a decrease in the number of cases is claimed since this method has been instituted.

DR. HIRAM BYRD, Jacksonville: Dr. Louis W. Sambon has recently presented evidence that to his mind excludes corn having anything to do with pellagra. A committee was appointed by the British Medical Association, composed of such men as Lauder Brunton, William Osler, Patrick Manson, Leishman, Ross, Sanwith, Simpson, Dawson and Williams, to investigate pellagra. After hearing Sambon's discussion of the subject, they passed a resolution that his idea was worthy of consideration, and proceeded to gather funds for investigating the disease. Sambon was appointed to have charge of the work. The investigation is to look into the question of the sand-fly as serving as a transmitter of the disease.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND

One Hundred and Twelfth Annual Meeting, held at Baltimore, April 26-28, 1910

(*Concluded from page 1639*)

The Importance of Thorough Teaching of Infectious Diseases of Childhood in the Medical Curriculum

DR. CLEMENS F. VON PIRQUET, Baltimore: The average student leaves our medical schools without having seen many of the infectious diseases of childhood. Several reasons may be assigned for this apparent neglect of a thorough instruction in these diseases. A large number of medical schools have no hospitals of their own in which such teaching can be carried on in a satisfactory manner. Those schools which are more intimately connected with well-equipped hospitals labor under the disadvantage that these institutions do not admit cases of infectious disease. One of the most prominent reasons for this is the expense entailed by a proper care of these cases. Many communities insist that a hospital for infectious diseases ought to be removed from the city limits. This is certainly true of those infectious diseases which do not occur regularly in a community such as plague, cholera, smallpox. But there is absolutely no necessity for this in the case of those infectious diseases which occur constantly, many foci of which still persist within the city limits. Particularly in severe cases of diphtheria is it important to be within as easy reach as possible of the hospital. In the teaching of infectious diseases, we must again make the separation into two main groups. In the one belong the sporadic infections not endemic in a community; in the other, the common infectious diseases. With regard to the former, we must demand of the practitioner that he be well enough acquainted with the usual infectious diseases to realize that a case of such sporadic disease, if he happens to meet it, presents features which do not belong to the common infections. With regard to the teaching of the second group, it is not sufficient to have read the text-books or to have seen as many cases as even a man with a large practice encounters. Only a special training in a hospital for infectious diseases can give the teacher sufficient experience to instruct the student properly. To sum up, we come to the conclusion that the medical student should get a good training in the ordinary infectious diseases of childhood, in order to make the diagnosis with certainty, even in somewhat atypical cases, in order to apply the right therapy, to be able to make a prognosis, and in order to take the proper prophylactic measure; and, finally, in order to distinguish a case of the dangerous, unusual infections which involve a real danger to the community. For this purpose, it is not sufficient for the student to get a theoretical course or to see a case in the dispensary now and then, but he should be taught at the bedside by a teacher who has himself a thorough training in infectious diseases. To this effect wards for the common endemic infections should be attached to the hospitals of the medical schools. From the hygienic standpoint, this is not only not objectionable, but has many advantages. I hope that this body will endorse the importance of these demands, and that the American Medical Association will take up the matter and bring it to the general consideration of the profession.

SYMPOSIUM ON UNCINARIASIS

Introductory Address: Importance of Uncinariasis

DR. WILLIAM H. WELCH, Baltimore: Both the profession and the laity are interested in this important topic. One of the most remarkable things about the disease is the mode of infection. Even though the parasite is an entozoan it enters the body through the skin. The possibility of infection

through the alimentary canal, however, cannot be excluded. In general, the more severe the infection the graver the symptoms, though there are exceptions to this rule. A point of dispute is as to whether or not the anemia of the disease is the result of the suctorial activities of the worm. The Porto Ricans claim that the parasite does not suck blood, but Whipple and others have shown that it does. The toxic theory of the disease is still in a hypothetical stage. The disease has received an odium, especially in the South, making difficult the campaign against its suppression. The work of the Rockefeller Commission, with the establishment of which Dr. Stiles had much to do, will be carried on in large measure through the medium of the local health departments. Success in the fight against the hookworm means a general improvement of living conditions in the South.

General Consideration of Uncinariasis

DR. CHARLES W. STILES, Washington, D. C.: The problem of uncinariasis involves practically the entire public health question in the South. In this country four different races are trying to live side by side—the white, black, yellow and red. It is impossible for four different species of animal to live together in this way. In 15 of the southern states the blacks form 34.44 per cent. of the entire population. In 8 of these states there are 833 blacks to each 1,000 of the whites. The cause of uncinariasis is the *Necator americanus*, on which the title of hookworm was originally bestowed by Fröhlich, who believed that the tail of the worm possesses hooks, though this is not true. In from 80 to 90 per cent. of all cases, and in all of the severe cases, infection takes place through the skin. A small proportion, including especially light cases, are the result of alimentary infection. The worms unquestionably suck blood, although this may not be observed if the cold worm is studied. The toxic theory deserves serious consideration. Among the common symptoms are anemia, prominent abdomen, the characteristic position of the hands due to the drooping of the shoulders, absence of the pubic hair, puffiness under the eyes, etc. The prevalence of the disease in the South is due (1) to the presence of the negro, and (2) to hygienic conditions; 61 per cent. of all the farms investigated in the South have not even a privy. The campaign against the disease must be one of cleaning up and of erecting sanitary closets throughout the South.

Uncinariasis: Its Frequency, Distribution and Importance in North Carolina

DR. W. S. RANKIN, Raleigh, N. C.: Uncinariasis is by far the commonest and most important disease of the South. Of 104 college students examined by Nicholson and Rankin, 52, or 37 per cent., were infected. These students represented 25 counties in the state. In the eastern counties the disease is certainly more severe and probably more frequent than in the western counties. It is most frequent on a soil composed of an upper layer of fine, gray, compact sand with a substratum of clay about 6 or 10 inches below the surface. It is almost entirely absent on a soil of coarse sand, 6 or 8 feet deep. When the two races are together the disease is far more frequent in the white. It is a disease of the barefoot period of life, and rural rather than urban in its distribution. The importance of the disease rests on its frequency and its far-reaching effects. As a direct cause of death in the South, it is rare compared to the number of those who have it. The indirect effect of uncinariasis, however, usually places its victim among those who "rarely die of the disease with which they suffer."

Climatic, Soil and General Conditions in Maryland with Reference to Uncinariasis

DR. MARSHALL L. PRICE, Baltimore, based his paper on an exhaustive study of climatic, soil and hygienic conditions in Maryland, as a result of which he concluded (1) that uncinariasis is not now a prevalent disease in Maryland, and (2) that there is little probability of its becoming so in the future. This Dr. Price attributes especially to the general employment of the sanitary privy, and to the fact that practically all the people wear shoes.

Clinical History and Pathology of Pellagra

DRS. WILLIAM F. LOCKWOOD, HARVEY G. BECK and CALEB W. G. ROHRER, Baltimore: One of the earliest descriptions of the disease was by Thierry in 1775, at which time the disease prevailed in the Asturias in Spain. Later it appeared in France and Italy and at present it is found in almost all the provinces which limit the upper zone of the corn belt in Europe. Owing to the short season, corn is cut unripe and becomes diseased, and the prevalence of pellagra in these localities is attributed to the eating of this affected corn. The disease is also found in certain regions of Africa and South America. Pellagra was first recognized in the United States only a few years ago by Searcy, who reported an epidemic in the insane asylum at Mt. Vernon, Alabama; since then the disease has been found to prevail in a number of southern localities. So far 7 cases have been recognized in Maryland, 4 of which have been treated at the Mercy Hospital and form the basis of this report. Clinically, pellagra is characterized by 3 well-defined groups of symptoms, viz.: (1) gastrointestinal; (2) cutaneous; (3) nervous. The gastrointestinal symptoms are anorexia, nausea and vomiting, burning sensation in epigastrium, diarrhea, stomatitis and salivation. The stomatitis is perhaps the most characteristic of these symptoms. The tongue has been termed the "cardinal" tongue because of its color and diagnostic value. The oral mucous membrane, as well as the anal, shows the same degree of congestion and redness. The most characteristic group of symptoms are the cutaneous. These appear symmetrically as an erythema resembling a simple sunburn on parts exposed, as the dorsa of the hands and the face or on pressure points in bed-ridden patients. Bullæ may form within a few days. The skin becomes dry and rough and assumes a characteristic chocolate color. Exfoliation takes place either in small bran-like scales or large masses of skin which frequently leave bleeding surfaces. After exfoliation the skin remains atrophied and has a smooth and glistening appearance. These lesions usually appear in the spring and frequently pass through all stages successively two or three times. The nervous and psychic symptoms are marked. Mental dulness and apathy are distinctive features. The expression is serious, the memory is poor and the patients are slow to comprehend. Melancholia is common and insanity develops in a considerable number of cases. Vertigo is frequently complained of. Reflexes may be disturbed and the gait affected by degenerative changes in the cervico-dorsal part of the cord. Pain and tactile sense may be entirely lost over the lesion. There are two forms of pellagra described: (a) acute typhoidal, (b) chronic recurrent. The pathology of pellagra is not constant. Different observers have described different pathologic findings. These, however, are usually discussed under three heads: (1) the changes in the intestinal tract; (2) changes in the nervous system; (3) changes in the skin. The changes in the intestinal tract consist of atrophy of the muscular coat, with intense hyperemia and occasionally ulceration. The most constant post-mortem change is alleged to be degeneration of the lateral columns of the spinal cord, most pronounced in the dorsal region. The skin changes are erythematous in type. At first there is congestion, followed later by pigmentation, and finally by desquamation. Our first autopsy showed an additional feature, namely, the presence of granulomatous bodies in the walls of the superficial blood vessels of the lungs and brain, and also in the stomach, intestines, spleen, kidney and uterus.

The Soy Bean as a Food in Diabetes

DRS. JULIUS FRIEDENWALD and JOHN RUHRÄH, Baltimore: The soy bean (*Glycine hispida*), sometimes incorrectly called the soja bean, is an annual leguminous plant which originally grew in a wild state from Cochin China to the south of Japan and to Java. The soy bean has been known in the United States for many years, but until the last 15 or 20 years, only as a curiosity. A full account of the plant will be found in Farmers' Bulletin No. 58 of the U. S. Dept. Agriculture, and of the different varieties in the Bureau of Plant Industry Bulletin No. 98. The bean has been put to many uses. The yellow variety, grown in America, has the following composition: Water, 10.13 per cent.; protein, 34.63 per cent.; fat, 17.98 per

cent.; nitrogen free extract, 30.50 per cent.; fiber, 3.69 per cent.; ash, 3.07 per cent. The most striking thing about the bean is the fact that it contains no starch, or, at least, a very small quantity, which is strange when one considers that it resembles the various beans very closely and that all other varieties of beans are extremely rich in starchy materials. The fact that the soy bean contains little or no starch suggests its use in certain diseases. One of us (Ruhräh) has already called attention to the use of the bean in infant feeding. It may be prepared in the form of gruel flour, gruels, broths, muffins, etc. In the eight cases of diabetes which we report the patients were placed first, on an unlimited diet, second, on the usual diabetic diet, third, on the usual diabetic diet together with the soy bean, the latter replacing largely the gluten or wheat bread. The percentage of sugar in the urine in these 8 patients with the 3 different diets, respectively, was as follows: Case 1, 1.5 per cent., 1.1 per cent., 9 per cent.; Case 2, 3.5 per cent., 2.1 per cent., 1.5 per cent.; Case 3, 3.2 per cent., 2.5 per cent., 2 per cent.; Case 4, 3.5 per cent., 2.4 per cent., 2.1 per cent.; Case 5, 2.2 per cent., 0.0 per cent., 0.0 per cent.; Case 6, 4.1 per cent., 3 per cent., 2.5 per cent.; Case 7, 3.8 per cent., 3.1 per cent., 2.6 per cent.; Case 8, 4.3 per cent., 3.4 per cent., 1.9 per cent. We conclude: 1. The soy bean is a valuable addition to the dietary of the diabetic on account of its palatability and the numerous ways in which it can be prepared. 2. The soy bean in some ways causes a reduction in percentage and total quantity of sugar passed in diabetic subjects on the usual dietary restrictions.

Diagnosis of Ulcer of the Stomach and Duodenum by the Roentgen Ray

DRS. HARRY ADLER and H. E. ASHBURY, Baltimore: The recognition of ulcer of the stomach and duodenum is always so important and at times so difficult that any method must be welcomed which promises aid in those atypical cases in which the absence of the cardinal symptoms permits only a suspicion or at most a presumption. The finding of blood in the stool, either occult or visible, has proved of great importance, but since even occult blood is often absent for weeks at a time, this means of diagnosis is frequently unavailable. Murdock's orthoform test is usually untrustworthy. Our purpose is simply to call attention to the valuable aid the *x*-ray has furnished in a number of cases. There was little in the literature to aid us. Hemmeter in 1906 spoke of the diagnosis of gastric ulcer by means of the *x*-ray, and referred to successful results in cases of artificial ulcer produced experimentally in dogs and cats. Our method is to give a single dose of bismuth and wait a time sufficient for the stomach to get rid of it, having determined in advance the motility. The picture is taken usually from four to six hours after the bismuth, which is given on an empty stomach. We have not found that the spinal column or ribs interfered with the demonstration. Of the 6 cases we report, 3 were undoubted cases of ulcer clinically; 1 was proved by operation. In 2 the diagnosis could be but presumptive without the *x*-ray examination. In 3 of the cases radiographs were made again, after carrying out ulcer treatment. In 2 the ulcer shadow had disappeared, in 1 it persisted. While the number of cases presented is small, the results are such as to lead us to believe that radioscopy is an extremely valuable aid to diagnosis, second in importance probably only to hematemesis or melena.

Deductions from Ten Years' Experience with Local Anesthesia for the Operative Treatment of Ano-Rectal Affections

DR. S. G. GANT, New York: This paper was based on an experience with over 2,800 cases of anorectal disease in which local anesthesia had been used.

Indications for and Relative Merits of Appendicostomy, Appendicocecostomy, Cecostomy, and Cecostomy with a Provision for Irrigating Both the Large and Small Intestine

DR. S. G. GANT, New York, after an exhaustive consideration of these various operations, laid especial stress on his method of performing cecostomy, with a provision for irrigating both the large and small intestine. The apparatus used in this method was exhibited

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

A National Department of Public Health

Since the last mention in this department the following bodies have passed resolutions endorsing the principles of the Owen bill (S. 6049) providing for a department of public health:

Ripley County (Ind.) Medical Society.
Columbia County (Pa.) Medical Society.
Lawrence County (Pa.) Medical Society.
Marion County (Iowa) Medical Society.
Gentry County (Mo.) Medical Society.
Washoe County (Nev.) Medical Society.
Winona County (Minn.) Medical Society.
Rutherford County (Tenn.) Medical Society.
Larimer County (Colo.) Medical Society.
Grafton County (N. H.) Medical Society.
Schenectady County (N. Y.) Medical Society.
Essex County (N. J.) Medical Society.
Worcester District (Mass.) Medical Society.
Wabash County (Ill.) Medical Society.
Nodaway County (Mo.) Medical Society.
Southeast Missouri Medical Association.
Tipton County (Ind.) Medical Society.
Camden County (N. J.) Medical Society.
Middlesex South District (Mass.) Medical Society.
Oklahoma County (Okla.) Medical Society.
Jefferson County (Ill.) Medical Society.
Parker-Palo-Pinto County (Texas) Medical Society.
Mercer County (Ill.) Medical Society.
Northern Iowa Medical Society.
Dekalb County (Tenn.) Medical Society.
Dover (N. H.) Medical Society.
Defiance County (Ohio) Medical Society.
Cass County (Ind.) Medical Society.
Nye County (Nev.) Medical Society.
Jefferson County (Ala.) Medical Society.
Philadelphia County (Pa.) Medical Society.
Genesee County (Mich.) Medical Society.
Washington County (Ill.) Medical Society.
Mahoning (Pa.) Presbyterian Men's Club.
New Hampshire Conference on Charities and Corrections.
Public Meeting of Citizens of Sydney, Ohio.
Physicians of Mandan, N. Dak.
Public Meeting of Citizens of Aledo, Ill.
Detroit Board of Commerce.
Oklahoma City Chamber of Commerce.
Physicians of Mason City, Iowa.
Citizens of Albany, Mo.
Citizens of Leadville, Colo.
Odd Fellows of Leadville, Colo.
Leadville (Colo.) Improvement Association.

NEWSPAPER COMMENTS

The following are a few of the editorial comments received:

The Natchez *News* says: "It needs no full elaboration of arguments to show that the health of approximately one hundred million inhabitants of the country is of equal importance with that of other matters of administration by the several departments. Laws as to sanitation, hygiene, prevention of disease, handling of epidemics, etc., can be carried out more successfully when the different bureaus now scattered in the several departments are consolidated into one in charge of a cabinet officer. . . . That the agricultural and industrial development of the country is possible only when the health of the country is good and that unnecessary waste of life and health are as injurious as the wasteful abuse of material resources is readily admitted by all. There is no doubt that if the bill is given careful consideration it will ere long become a law, to the lasting benefit of the country."

The Bellingham (Wash.) *Sunday Herald* says editorially: "Of all the plans of doctors and laymen none has in it greater merit and promise than that proposed by Senator Owen for the creation of a national department of public health. . . . We have been wasteful of our greatest national asset, the health of the nation, as we have been wasteful of our great natural resources. It is time to stop and take count—to notice what price we are paying—to see whether industrial supremacy is not costing too much, not only in wasted lives and in needless sorry and suffering but in cold, bare dollars and cents. It is a case not for sentimentality and theorizing but for hard common sense and the application of such knowledge as we now have. Every public health officer in the land, from the official in whose keeping is the health of the smallest town to the commissioners of health of our greatest states, should be able to turn to a full-fledged, properly equipped and widely experienced department in Washington for advice, support and relief. In many cases the health of whole com-

munities is now endangered for lack of a central department able to advise with authority and of sufficient prestige to have its requests listened to with attention. . . . As the national Department of Agriculture has been of incalculable benefit to the farmer and the state departments of agriculture, so will a national department of health help the state and municipal governments to carry into every household and factory in the land the new gospel of fresh air, of decent housing, of factory legislation and of wages sufficient to enable the wage earner to maintain what we regard as an American standard of comfort. Senator Owen has performed a great public service in proposing this first adequate solution of our difficulties. If Congress would realize the change that has taken place in public sentiment during the last few years and the weight of the public demand for this bill, of which evidences are at hand at every turn, it is possible that congressmen would hasten at the present session to heed the wishes and united demand for a thoroughgoing reform of our outgrown and inadequate public health ligislation."

The Flint (Mich.) *Journal* says: "We must agree that it is quite as necessary to save men, women and children as pigs, lambs and goats, yet our national expression, disclosed in the present cabinet arrangements, would hardly indicate this to be true. It is not so long ago that Michigan passed through a siege of foot and mouth disease, at which time several cases of suspected animals were placed in quarantine in Wayne county. Immediately an embargo was placed on the entire state and the shipment of live stock of all kinds prohibited for a period of thirty days. There is no doubt but that action is quick and prompt and effective under federal control, as was evidenced in this case. But consumptives are still passing up and down our highways, coughing up their sputum, to await a favorable opportunity on pavement or street to be picked up in a whirling cloud of dust and carried into the noses and mouths of innocent victims. . . . Uniform regulation is of as much importance in matters of health, surely, as in railroad control or legal decisions. A department like the one in contemplation could gather accurate data on all questions of health and sanitation throughout the entire country and conditions and causes regarding all diseases could be carefully studied with the end in view that the chief causes of preventable diseases and unnecessary ill health could be established and the information widely distributed."

The Garland (Utah) *Globe* says: "The establishment of a department to carry on a war against the ravages of preventable diseases would be a godsend to the nation. . . . If this bill should fail to become a law the people would be to blame. . . . Let us unite in asking our legislators to vote for the passage of the bill. We have a Department of Agriculture that looks after the lives and health of plants and animals—why not have a national department of health to aid in saving the lives of the people?"

Resolutions on Optometry

The following resolution was adopted at a meeting of the American Ophthalmological Society, May 4:

WHEREAS, The American Ophthalmological Society is strongly opposed to the so-called "optometry" bills, which are now being brought before our state legislatures; and

WHEREAS, This legislation is unnecessary, unwise and involves a lowering of medical standards; and

WHEREAS, There can be no compromise with its advocates from the medical profession.

Resolved, That if opticians must be recognized, it should be as opticians, and not under the new name of "optometrists;" that if there must be recognition, it should be legal only, and not medical, and that the medical profession should not lend its sanction by serving on optometry boards, or by taking "optometry" boards under the supervision of state boards of medical registration.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Tenth Month—Second Weekly Meeting

HYSTERIA

ETIOLOGY: Age, sex, race, heredity, neuropathic tendencies in antecedents, emotions, trauma, infections and toxic agents. Association with organic disorders, imitation.

SYMPTOMS: A, Stigmata and, B, accidents of hysteria.

STIGMATA: A. Sensory stigmata, (a) anesthesia, cutaneous anesthesia, perversion of taste and smell, diminished hearing, contracted visual field, dyschromatopsia, amblyopia. Distribution of anesthesia, one-half of body, geometrical areas and islets. Movable anesthetic zones. Condition of reflexes in anesthesia. (b) Hyperesthesia. Neuralgic pains. Sensitive areas, clavus, Brodie's joints, tender breasts, etc. Hystogenic zones. B. Motor stigmata. Retarded movements, inco-ordinate movements, weakened voluntary movements, "Diathesis of contracture." C. Mental stigmata. Amnesia, localized, systematized or total, aboulia, suggestibility, simulation.

ACCIDENTS OF HYSTERIA: A. Convulsive attacks; (a) grand attacks, prodromal stage, epileptoid period, period of clownism, of passional attitudes, of delirium; (b) modified attacks, vertiginous, globus, epileptoid, tetanic, ecstatic, syncopal, somnolent or somnambulic attacks. B. Motor accidents. Paralysis, hemiplegia, monoplegia, ptosis, torticollis. Contractures. Astasia abasia. Rhythmical spasms, tremors, tics. C. Sensory accidents, neuralgias, cephalalgias, pseudomeningitis, irritable spine, pseudoangina. D. Visceral accidents, (a) respiratory, aphonia, cough, noises, etc., dyspnea, hemoptysis, (b) digestive, anorexia, dysphagia, vomiting, tympanites, (c) urinary, polyuria, anuria, frequent urination, variations in constituents, (d) trophic and vasomotor, erythema and vesicular rash, bloody tears and sweats, dermographism, edema. Contractures and muscular atrophy. Hysterical breast. Hysterical fever.

Book Notices

SURGERY OF THE BRAIN AND SPINAL CORD. By Prof. Fedor Krause, M.D., Geh. Medizinalrat Dirigierender Arzt am Augusta Hospital zu Berlin. Translated by Prof. Herman A. Haubold, M.D., Clinical Professor in Surgery, Bellevue Hospital and New York University Medical College. Vol. I. Pp. 282, with illustrations. Price, $6.00. New York: Rebman Co.

The first portion of this book is devoted to a brief description of the various methods of opening the cranium and of the instruments used for that purpose. The author manifests a distinct preference for the osteoplastic method by use of the Dahlgren forceps (which is of the type known in this country as Devilbis). Emphasis is placed on the dangers of hemorrhage from various structures, and the compression methods of Haidenhain and Kredel for control of scalp hemorrhage, and of crushing and packing for that from the bone, are given preference. The advantages of different methods of opening the posterior fossæ are discussed.

Following the mechanical procedure of exposing the brain, the decription of the surgery of each of the conditions calling for surgical treatment is fully presented. Chronic leptomeningitis, arachnoid cysts and cysts of the brain of various characters and their causes, are considered in order. Naturally, a considerable space is devoted to tumors. The surgery of brain tumors comprises a large part of the real progress made in brain surgery in the last decade. Greater accuracy in diagnosis, and especially in localization, together with the advantages of extensive exposures have made nearly all regions of the brain accessible and many of the heretofore unapproachable lesions are now removable.

The various forms of tumor and conditions involving the meninges and cortex, including tuberculosis and syphilis, are considered, and then follows a lengthy presentation of the surgery of the base of the brain, including that of the pituitary body and the nerves. The various details of operative procedures and of wound treatment are given in minutiæ, and the various possible complications and their prevention and treatment are fully discussed. The indications for and technic of decompression trephining are satisfactorily presented.

One of the shortest and most practical sections of the work, for the general surgeon, is that devoted to closure of large cranial defects. Cranio-cerebral topography and puncture of the brain and ventricles are also considered, and the last chapter is devoted to a very brief consideration of radiography.

The terse, clear and forceful text is illustrated by many drawings and fairly illumined by numerous colored plates, which accurately portray the appearances presented by the various pathologic processes and the operative measures.

American physicians are to be congratulated on being now able to obtain in translation Krause's justly celebrated monograph, in which has been preserved, as far as possible, the author's peculiarly effective method of expression.

A SYSTEM OF SYPHILIS. Edited by D'Arcy Power, M.B., F.R.C.S., and J. Keogh Murphy, M.D., M.C., F.R.C.S. In Six Volumes. Vol. III. With an Introduction by Sir Jonathan Hutchinson, F.R.S. Cloth. Pp. 267, with illustrations. Price, $13.50. New York: Oxford University Press, 1909.

This volume contains 250 pages. In it Osler and Gibson of Oxford write on "Visceral Syphilis;" Mercier of Charing Cross Hospital, London, on "The Clinical Aspects of General Paralysis;" Castellani of Colombo, on "Yaws;" S. B. Atkinson of the Inner Temple, London, on "Medicolegal Aspects of Syphilis;" E. M. Brockbank, London, on "Syphilis and Life Assurance;" Haldin Davis of Paddington Green Children's Hospital, London, on "Serum Diagnosis of Syphilis." This volume is thus distinctly a British statement of the subjects considered; for all of the writers on syphilis are Britons except Osler, and Osler, to our loss, the British have appropriated.

Osler and Gibson's contribution constitutes a good brief monograph on syphilis of the viscera. It gives a summary of our knowledge of this subject, but we miss the complete consideration of the topics which their importance justifies. The subjects, however, are covered fully, if briefly, and with its abundant references to the literature the monograph makes an admirable beginning point for one desiring to make a full study of any topic embraced within its scope. Its value is greatly enhanced by twenty-four very instructive illustrations, those of microscopic objects being in color and beautifully reproduced. Mercier's article on general paralysis is admirable. It is detailed, logically developed, and forms a most readable brochure on the subject.

A chapter is given to yaws. Yaws is not syphilis, but the consideration of yaws in a system of syphilis is pertinent because of the many close relations between the two diseases. The article is by Castellani, who, by virtue of his large experience with the disease in Ceylon and particularly by virtue of his discovery of the *Spirochæta pertenuis* as the specific organism of yaws, is perhaps of all men the one best entitled to write with authority on the subject. The interest of his article is much increased by a large number of illustrations showing the *Spirochæta pertenuis*, experimental yaws in monkeys, primary lesions of yaws in men, and various stages and types of the later lesions of the disease in men. Aside from its interest as one of the important tropical diseases, yaws has a peculiar interest because of its many resemblances to syphilis and Castellani's article is a welcome addition to the volume.

The article on some medicolegal relations of syphilis and on the one on syphilis and life assurance are good. Brockbank's article in particular on syphilis and life assurance is suggestive. It is full, with copious bibliography, and contains a large mass of important facts bearing on the influence of syphilis on life-expectancy. All of his facts indicate that syphilis is an appreciable shortener of life. The last article in the volume is on serum diagnosis by Haldin Davis. His description of the technic is a clear description of a very complicated subject and the article as a whole is satisfactory and up to date.

Taking this volume at large it is a useful statement of our knowledge of the phases of syphilis of which it treats and it can be fully commended.

THE INTERNATIONAL MEDICAL ANNUAL. A Year-Book of Treatment and Practitioner's Index. Twenty-Eighth Year, 1910. Cloth. Price, $3.50. Pp. 702, with 108 illustrations. New York: E. B. Treat & Co.

This British publication under the editorial supervision of a number of British and American physicians and surgeons corresponds with the year-books published in this country, but is in one volume instead of in separate volumes for various groups of subjects or time of year. The whole field of medicine and surgery is reviewed briefly, more space being given, of course, to the important subjects, and considerable to the newer topics of experimental medicine, with editorial comment, approving or disapproving certain theories, plans of treatment or operative procedures. The book is well illustrated and offers a comprehensive review of the year's work.

Medicolegal

Liability of Employer for Communication of Contagious Disease

The Court of Civil Appeals of Texas says that the case of Mellody vs. Missouri, Kansas and Texas Railway Co., of Texas, 124 S. W. R., 702, was brought to recover damages sustained by the plaintiff through the alleged negligence of the company in permitting one of its section houses to become infected with smallpox, which was communicated to him, destroying his eyesight. That the railway company would be liable for the spread of a contagious disease through the negligence of its servants acting within the scope of their authority, whereby another was injured as the proximate result of such negligence, was not at all questioned.

At the section house referred to, the plaintiff's father, a section foreman, resided with his family, and one Bryers, another section foreman, boarded. Bryers, it appeared, had gone to Palestine at the time there was an epidemic of what was called "black measles" in the city, talked at a distance of some 50 feet through an open window to his wife, who was quarantined, and arranged to take away their child, who was at another house some 50 feet away, obtaining for both himself and child health certificates from the city health officer. While on the train his child went near another one, whose mother said it had fever, and, as she had but recently lost her husband as a result of black measles, she feared the little one was afflicted in the same way. After being advised of this, Bryers did not permit his boy to go near the sick child any more. Some 15 days after he was brought to the section house he was taken sick with what proved to be smallpox, and it was learned that his mother died of smallpox. Two or three days after the boy was taken sick the roadmaster was at the section house, and the circumstances under which the boy was obtained, etc., were explained to him. Under such circumstances, the court does not consider that there was any liability on the part of the company in these cases.

A careful examination of all the testimony utterly failed, it says, to show actionable negligence on the part of either Bryers or the roadmaster in respect to placing or allowing Bryers' child to remain in the section house until its death, and therefore the railway company could not be required to respond in damages for the injuries sustained by the plaintiff on account of the house becoming infected with smallpox by the presence of Bryers' afflicted child, or because said disease may have been communicated to the plaintiff by actual contact with said child. Clearly, Bryers was not acting within the scope of his authority so as to bind the company up to the time of placing his child in the section house, and, in permitting the child to remain therein the short time which elapsed from the time he discovered the child was probably afflicted with smallpox and the time of its death, he could not fairly be charged with a failure to do what an ordinarily prudent person would have done under the circumstances of the situation.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal

May 5

1 *Exophthalmic Goiter. W. H. Robey, Boston.
2 *Recent Advances in Treatment of Exophthalmic Goiter. C. Frothingham, Boston.
3 *Need of Instruction and Experience in Nursing as Part of Medical Education. F. P. Denny, Brookline, Mass.
4 Physiology Versus Anatomy. G. V. N. Dearborn, Cambridge, Mass.

1. **Exophthalmic Goiter.**—Robey advises that the patient should be given first the advantage of medical treatment by whatever methods the physician can suggest and the patient has the means to adopt. The physician should, however, keep in close touch with his patient and should be watchful for

constantly increasing benefit from treatment. He should not allow his patient to grow worse nor to stand still in a condition of invalidism without the advice of an experienced surgical adviser and operator. It is unsafe to allow an exophthalmic goiter with distressing symptoms to continue without improvement because the toxemia sometimes exerts a sudden and alarming influence on the heart. Again, persons with well-developed exophthalmic goiter do not stand ordinary intercurrent infections which would hardly trouble a normal individual.

2. **Treatment of Exophthalmic Goiter.**—Frothingham gives a splendid review of all forms of treatment employed in this disease, and asks for more complete statistics. They should, he says, be classified according to the number of years since treatment was instituted. The same authors should compare simple medical treatment with that plus the special forms of treatment, such as operation, serum, etc.

3. **Instruction in Nursing as Part of Medical Education.**—Attention is called by Denny to the importance of nursing in therapeutics, because ignorance of nursing renders the physician's work less effective. He says that physicians need to have personal experience in nursing in order to prescribe treatment intelligently. His plan is as follows: Experience in nursing could be given men medical students in the male wards of a hospital. The students would do the nursing in the wards, under very careful and close supervision, the expense of the supervision being borne by the students' fees. The discipline should be very strict, military in character and good conduct and good work in the wards would be essential for a medical degree. As few patients as possible should be assigned to each student, so that the service rendered would be individual and personal. The students should be made to feel that they are responsible for the comfort of their patients. A nursing service of at least a month, preferably two months, should be required of each student. A part of the service should include night duty, as conditions are very different at night from the patient's point of view and a physician's knowledge of sickness is incomplete unless he has spent a number of nights at a patient's bedside. Combined with the experience in nursing there should be instruction in the various therapeutic measures which a nurse carries out. It could probably be arranged that most of the students should do their nursing during the summer, just as the engineering students have their "field work" at that time. During his nursing service the student will get closer to his patients than he ever has before or ever will again. Pictures of disease, expressions, posture, types of respiration, knowledge which cannot be obtained from books or lectures become impressed on the student's mind in a way that years of clinics would not do. For training in practical therapeutics, there is nothing in the present course to compare with it. Students will become familiar with the appearance, smell, taste, mode of administration and action of drugs. In no other way can the student so well learn the wealth of simple measures, which in the hands of an intelligent nurse, can be of the greatest comfort; for example, moist and dry heat, cold compresses, ice bags, packs, baths, rubbing, counter-irritants, etc. As a means of learning practical dietetics, this experience would have no equal.

Medical Record, New York

May 7

5 Cellular Activity: The Epitome of Rational Medicine. M. A. Cleaves, New York.
6 Action of Intermittent X-Rays on General Metabolism and Chronic Degenerative Diseases of the Eye. F. R. Cook, New York.
7 The Significance of Leucorrhea. A. H. Goelet, New York.
8 Diagnosis of Lesions of the Abdominal Viscera: Special Reference to Their Functional Integrity. H. S. Carter, New York.
9 Streptococcus Infections of the Throat. R. McKinney, Memphis.
10 Abstraction of the Calcium Salts of the Lipoids Circulating in the Blood, for the Purpose of the Neutralization of the Organic Acids: Cause of Lipemia in Diabetes Mellitus. J. G. Brennan, Chicago.
11 *Practical Method of Anesthesia for Removal of Enlarged Tonsils and Adenoids and Other Operations on the Head. M. E. Jutte, New York.

11. **Anesthesia for Operations on Head.**—A wide-mouthed bottle with a double perforated rubber stopper, which holds two tubes, is used by Jutte. One tube reaches the bottom of the bottle, the other just passing through the stopper. The long tube is connected with a double bulb, the short one with a metal mouthpiece, such as is used by dentists. Narcosis is induced by the drop method, until the patient is well under. The metal mouthpiece is hooked around the mouth gag and ether vapor is forced into the mouth of the patient by a rubber bulb. Jutte says that narcosis can be kept up for a long time.

New York Medical Journal

May 7

12 *The Significance of the Various Enlargements of the Thyroid: Especially Exophthalmic Goiter. C. Beck, New York.
13 Norway for Neurasthenia. C. E. Nammack, New York.
14 Serodiagnosis of Syphilis. V. C. Pedersen, New York.
15 Heredity as a Factor in the Etiology of Tuberculosis. E. L. Shurley, Detroit.
16 Interesting Points in Gastrointestinal Surgery. T. C. Witherspoon, Butte, Mont.
17 Fibroid Tumors Complicating Pregnancy. E. G. Torrance, Birmingham, Ala.
18 *Where Shall the Pharmacopeia Draw the Line of Demarcation? S. S. Cohen, Philadelphia.

12. Abstracted in THE JOURNAL, Oct. 23, 1909, p. 1426.

18. **Revision of Pharmacopeia.**—The Pharmacopeia, says Cohen, is a book of pharmacal standards and neither an advisory nor a minatory work on therapeutics. Admission or rejection should depend on the voice of the whole profession, and not on the voice of teachers or leaders only, whether pharmacologists, clinicians or therapeutists. Many preparations of one drug are permissible, when desired by physicians in general. Many drugs of similar action are permissible and even necessary. Active principles should not displace the crude drug and galenical preparations, unless physicians in general all agree that the active principle is the only necessary or desirable preparation. Monopolization by patent or trademark should not exclude a drug otherwise proper to be admitted. In the case of trademarked names legal advice should be taken as to the best method of procedure. In the case of process patents and product patents, the effort should be made to use pharmacopeial control and standardization to the mitigation of the evils of high price and uncertainty of product possible under the present bad system. A determined effort should be made to modify the laws of the United States so that in the case of medicines, processes only, and not products, can be patented. Trademarks can only be manufacturers' brands, and hence the common name of a medicine cannot be used as such. If this is not good law at present, it should be made such by statute.

Medical Fortnightly, St. Louis

April 25

19 Treatment of Diseases of Skin Pigmentation. A. S. Ashmead, Canadensis, Pa.
20 Are Elections in the American Medical Association and Its Constituent Associations Fair and Legal? G. F. Lydston, Chicago.
21 Progressive Muscular Dystrophy of the Juvenile Type. J. M. Bradley, St. Louis.

American Journal of Urology, New York

April

22 Diagnosis of Essential Hematuria. R. L. Rigdon, San Francisco.
23 Acute Fulminating Gangrene of the Penis and Scrotum, with Known Port of Entry, ending Fatally. J. A. Gardner, Buffalo.
24 Influence of Resection of the Kidney on the Function of the Organ: When Kidney Wound is Closed by Sutures; When the Kidney Wound is Drained (a) by a Rubber Tube, (b) by Gauze. J. H. Cunningham, Boston.
25 Use of Collargol in Genitourinary Surgery. O. Pasteau, Paris.

Illinois Medical Journal, Springfield

April

26 *Indications for Herniotomy in Inguinal Hernia. E. S. Judd, Rochester, Minn.
27 Bad Nauheim: Its Treatment and Therapeutic Value. J. H. Honan, Berlin, Germany.
28 Recognition of Extrauterine Pregnancy. A. M. Miller, Danville.
29 *The Baby-Tent Idea. F. W. Allin, Chicago.
30 Diagnosis of Rachitis. J. W. Van Dersfice, Chicago.
31 Survey of the International Movement Concerning Infant Welfare. I. A. Abt, Chicago.
32 Complete Excision of the Tonsil. J. W. Smith, Bloomington.

33 Arteriosclerosis of the Urinary Bladder. G. Kollscher and H. Kraus, Chicago.
34 Vesicovaginal Fistula. C. J. Drueck, Chicago.
35 Nervous Symptoms in Diabetes. L. H. Mettler, Chicago.
36 The Ten-Hour Law. E. Freund, Chicago.
37 Compressed-Air Illness. P. Bassoe, Chicago.

26. Herniotomy in Inguinal Hernia.—The simplest and most satisfactory way of treating inguinal hernia in children, according to Judd, is by operation, and the chief indication for performing it is the trouble and consequent anxiety to the mother in caring for the child in this condition. Herniotomy, he says, is the only safe method of treating inguinal hernias in adults. The operation can be done with much better satisfaction and more safety in old people than was formerly believed.

29. The Baby-Tent Idea.—The equipment of the tents used in Chicago consists of a hospital tent about 12 by 16 feet, with a double roof, board floor and sides, and screen sides above the chair rail. Each contains 8 iron beds, a hammock, electric lights, 2 electric fans and a telephone. There is also a receiving tent, about the same size, for examining, bathing and temporary care of the baby. Milk-commission milk has been used almost exclusively, as a milk depot was maintained at each tent. The tents are opened about July 1 and closed about September 15. The tents are kept open nights and Sundays only in extreme emergency of either very sick patients, or severely hot weather, to prevent the usual "blue Monday," for it was noted Monday was the worst day of the week. A visiting nurse is in charge of each tent, with one or two assistants. When the work justifies, an intern spends all day at the tent. Every day some physician visits the tent. The arrangements are such that each physician visits a tent twice a week. Only patients under about 2 years of age are received, as those older could not be kept in the beds. Only babies of the poor are taken. When it can be determined through the visiting nurse of the district that the parents are able to pay they are referred to their family physician. A large proportion of these little sufferers are brought in or sent in by the district visiting nurse. When patients fail to return they are investigated by the visiting nurse.

Journal Missouri State Medical Association, St. Louis

April

38 Plea for an Early and More Careful Diagnosis in Joint Tuberculosis in Children. A. O'Reilly, St. Louis.
39 Intestinal Obstruction: Especially Intestinal Paresis. T. E. Potter, St. Joseph.
40 Excision with Immediate Suture Operation for Fistula-in-Ano. E. H. Twaddill, Kansas City.
41 Dystocia Due to Cesarean Section. G. Gellhorn, St. Louis.
42 Human Tuberculosis Considered from Several Viewpoints. G. Homan, St. Louis.
43 The State Laboratory as a Safeguard to Public Health. G. McConnell, St. Louis.
44 The Early Diagnosis and Surgical Treatment of Cancer of the Stomach. C. R. Dudley, Hannibal.
45 Excision of the Rectum. W. H. Coffey, Kansas City.
46 Ovarian Tumor Complicating Pregnancy: Recovery after Operation. D. Forester, St. Louis.
47 Tumors of the Parotid Gland. F. Reder, St. Louis.
48 The Missouri State Sanatorium. O. H. Brown, St. Louis.
49 Ophthalmologic Experience. B. Pitts, St. Joseph.

Archives of Internal Medicine, Chicago

April

50 *Sexual Forms of Malarial Plasmodia Occurring in the Blood of Man. C. W. Craig, Washington, D. C.
51 The Comparative Value of Vasomotor Drugs in Renal Hemorrhage. C. J. Wiggers, Ann Arbor.
52 *Relation of Typhus Fever (Tabardillo) to Rocky Mountain Spotted Fever. H. T. Ricketts and R. M. Wilder, Chicago.
53 Perforating Ulcer of the Foot in Alcoholic Neuritis. R. M. Van Wart, New Orleans.
54 *Influence of Scopolamin-Morphin Narcosis on Metabolism. F. M. Barnes, Baltimore.
55 Physiologic and Pathologic Effects of Severe Exertion (Marathon Race) on the Circulatory and Renal Systems. J. H. Barach, Pittsburg, Pa.
56 *Protein Metabolism in Pneumonia. C. G. L. Wolf and A. Lambert, New York.

50. Sexual Forms of Malarial Plasmodia.—From what is said by Craig regarding the action of quinin on the malarial gametes it is evident that if we thoroughly treat our malarial patients during the initial attack of the disease we shall prevent the formation of these bodies, and, therefore, the transmission of the infection to the mosquito. A great deal of the malaria prevalent in every malarial locality is directly traceable to improperly treated patients, and the prophylaxis of the disease will be immensely helped by the thorough treatment of every infection. The practice of regarding such infections as cured because the active symptoms have disappeared is a most common and a most pernicious one and one that is responsible for the transmission of a very large proportion of malarial disease. Every malarial patient, he asserts, should be kept on quinin for at least a week or two after the disappearance of symptoms, and should take the drug, in 10-grain doses, once a week for 2 months after the acute attack.

52. Typhus and Rocky Mountain Spotted Fever.—The serum of typhus convalescents drawn within a week to 10 days, after the subsidence of fever, Ricketts and Wilder found did not exert any more protective effect against spotted fever than normal serum does. Also, such serums show little or no more agglutinating effect for the bacilli which appear to be associated with spotted fever than do normal serums. A monkey which had been rendered immune to typhus was not immune to spotted fever. These experiments, the authors believe, substantiate the clinical evidence and that obtained by animal inoculations, that spotted fever and typhus fever are not identical, and they seem also to indicate that the organisms of the two diseases are not closely related biologically, whatever the morphologic conditions may be. The fact also that the serum of a disease (typhus) which is roughly similar to spotted fever, has no unusual agglutinating power for the bacilli mentioned, as compared with the high agglutinating power of immune spotted fever serum, supports the contention that this bacillus bears a causal relation to spotted fever.

54. Scopolamin-Morphin Narcosis in Metabolism.—Barnes believes that the points brought out by his observations justify the following conclusions:

1. Scopolamin-morphin when given together in sufficient quantity and when leading to a depression of activities cause a decrease in the absolute amounts of nearly all of the normal constitutents of the urine.
2. Scopolamin alone, when it leads to an elevation of activities, causes an increase of such constituents.
3. The increase or decrease affects all constituents about equally.
4. The effect of both drugs together or of the scopolamin alone is shown transiently not more than 12 hours and perhaps less, and on the day following the administration of the drugs the variation is partly counterbalanced by an increase or decrease, as the case may be.
5. Repeated doses of both drugs together over a long period of time will lead to a form of tolerance.
6. The influence on metabolism, as indicated by the variations in the urinary secretion, seems due to an indirect and secondary action of the drugs. The retardation of absorption from the alimentary tract is considered the prime cause for the variations found in the urine during these studies.

56. Protein Metabolism in Pneumonia.—Wolf and Lambert examined the nitrogen and sulphur metabolism in 19 cases of pneumonia of varying degrees of severity. They found that the cases of milder type show a smaller loss in nitrogen and sulphur than do those of a more severe grade. The daily loss in nitrogen on a diet adequate to protect a resting individual from nitrogen loss may be from 20 to 25 gm. The relative desamidating capacity, as shown by the ratio of urea nitrogen to total nitrogen, is comparable to that of a normal subject. The capacity for the oxidation of the cystin group, as exhibited by the ration of total sulphate sulphur, is quite as high, if not higher than normal. During the period of hyperpyrexia excessive amounts of creatinin are eliminated. This is followed during convalescence by a subnormal excretion of creatinin. This is taken to indicate the endeavor on the part of the organism to repair the losses sustained during the height of the toxemia.

In the severe cases of pneumonia large amounts of creatin are also excreted. This is seen particularly during the time of greatest nitrogen loss. During convalescence the creatin disappears from the urine. In some of the lethal cases the amount of creatin excreted on the day terminating the illness is as high as the amount of creatinin excreted. During hyperpyrexia, especially in cases severely toxic in type, unusually high amounts of undetermined nitrogen are excreted. In some cases over 5 gm. of nitrogen derived from uninvestigated substances are found in the urine. The nitrogen is not derived from albumoses, as the search for these substances revealed quantities which in no way could account for the large amount of rest nitrogen. The sulphur excretion runs more or less parallel with that of the nitrogen; but it appears in some of the cases that the catabolism of proteins rich in sulphur is not so marked as those in which the content of

sulphur is small. On the other hand, cases progressing unfavorably seem to show an excessive destruction of proteins containing much sulphur. This is made out from the increased ratio of total sulphur to total nitrogen.

Iowa Medical Journal, Des Moines

April

57 Etiology, Pathology and Symptomatology of Cholecystitis. E. W. Meis, Sioux City.
58 Complications, Sequelæ and Diagnosis of Cholelithiasis. J. L. Klein, McScntine.
59 Treatment of Cholelithiasis. C. E. Dakin, Mason City.
60 Malignant Disease of the Billiary Tract. E. H. Robb, Detroit Harbor, Wis.
61 Cerebrospinal Meningitis. G. M. Johnson, Marshalltown.
62 An Epidemic of Infantile Paralysis. J. W. McCreery, Whittemore.
63 Plea for Better Supervision in the Treatment of Acute Exanthemata. C. S. Grant, Iowa City.
64 Plea for the Revival of Venesection. J. H. Schrup, Dubuque.

Western Medical Review, Omaha

April

65 Syphilis of Bone. A. C. Stokes, Omaha.
66 Determination of Eyestrain by the General Practitioner. H. B. Lemere, Omaha.
67 Hematuria. R. R. Hollister.
68 Rubella. F. W. Phifer, Wheatland, Wyo.

United States Naval Bulletin, Washington, D. C.

April

69 The Commissary Department in Naval Hospitals. P. A. Lovering, U. S. Navy.
70 *The Presence of the Lepra Bacillus in the Circulating Blood. G. B. Crow, U. S. Navy.
71 The Finding of Hookworm in American Samoa. P. S. Rossiter, U. S. Navy.
72 Prevention of Venereal Diseases in the Navy. R. Spear, U. S. Navy.
73 Rational Treatment of Arteriosclerosis. C. H. T. Lowndes, U. S. Navy.
74 Treatment of Syphilis at Hot Springs, Ark. W. S. Hoen, U. S. Navy.
75 A Portable Sanitary Scuttle-Butt. E. G. Parker, U. S. Navy.
76 Suggestions for Diet-Kitchen Equipment. S. Wierzbicki, U. S. Navy.
77 Colonic Anesthesia. W. S. Pugh, U. S. Navy.

70. **Lepra Bacillus in the Circulating Blood.**—After satisfying himself of the diagnostic value of Rosenberger's method of demonstrating the tubercle bacillus in the circulating blood, Crow began an examination of the blood of the patients in the leper colony here in Guam. The technic used is practically that of Rosenberger. Sixteen cases were examined. In 15 the blood contained a bacillus which morphologically and in staining reactions is identical with the lepra bacillus. In some cases only a few were found and then only after prolonged search; in other cases they were quite numerous. They occurred singly and in groups with varying frequency, and did not appear within leucocytes as often as did the tubercle bacillus; many were beaded. In almost every case some of the organisms, but not all, showed the long, slender, spindle-shaped outline characteristic of those found in the nasal discharges and in leprous nodules. The negative case shows clinical evidence of the disease.

Denver Medical Times and Utah Medical Journal

April

78 The Complement Fixation Test for Syphilis (Wassermann Reaction) by the Bauer-Hecht-Fleming Method. B. Oettinger, Denver.
79 Quinin and Urea Hydrochlorate as a Local Anesthetic. F. M. McCartney, Denver.
80 Is Alcohol Necessary in Medicine? F. G. Byles, Denver.
81 A Substitute for Belocq's Application of Tampon and a very Rare Case of Sarcoma Ossis Turbinalis. Z. V. Dworzak, Denver.
82 Moral and Physical Advantages to be Derived Under the Library and Gymnasium Act, 1909. E. E. Hinckley, Provo, Utah.
83 Mistakes in Tabes Dorsalis. W. B. Ewing, Salt Lake City.

New Orleans Medical and Surgical Journal

April

84 Beck's Bismuth Paste for Diagnosis and Therapeutics. H. B. Gessner, New Orleans.
85 Etiology of Infantile Diarrhea. C. W. Duval, New Orleans.
86 Pulse Tracings—Their Application and Value in Practice. L. I. Lemann, New Orleans.
87 Plea for Enforced Vaccination in the State. R. O. Simmons, Alexandria, La.
88 Vital Statistics. B. A. Ledbetter, New Orleans.
89 Work of the Louisiana Antituberculosis League. E. L. McGehee, New Orleans.
90 The Symptomatology of Empyema of the Frontal Sinus. G. W. Robinson, Shreveport, La.
91 Pathologic Relations Between the Frontal Sinus and Diseases of the Eye. H. Dupuy, New Orleans.
92 Etiology of Frontal Sinusites. G. King, New Orleans.
93 Treatment of Empyema of Frontal Sinuses. R. F. Harrell, Alexandria, La.
94 Ethyl Chlorid as a Local Anesthetic. H. B. Gessner, New Orleans.

American Journal of Orthopedic Surgery, Philadelphia

May

95 *Operative Remodeling of the Tarsus for Immediate Correction of Severe and Relapsed Forms of Club-Foot. B. Bartow, Buffalo.
96 Experimental Work with Materials for Plugging Sinuses and Bone Cavities. P. Le Breton, Buffalo.
97 Spina Bifida: Its Relation to Orthopedic Surgery. D. La-Ferte, Detroit.
98 Static Foot Error in Private Practice. A. H. Williams, Hartford, Conn.
99 The Rôle of the Foot and Leg Muscles in Flat-foot. H. W. Orr, Lincoln, Neb.
100 *Tendon Transplantation in Flat-foot. E. W. Ryerson, Chicago.
101 Modifying Injections in Treatment of Tuberculous Osteoarthritis. P. Redard, Paris.
102 The Epiphysis: Especially Retardation and Stimulation of Growth. W. R. MacAusland, Boston.
103 *Two Unusual Results Following Fracture of the Shaft of the Femur. J. Ridlon, Chicago.
104 Congenital Pronation of the Forearms. C. F. Painter, Boston.
105 Bone Wiring: Retroversion of Upper Extremity with Operation for Correction; Interpelvic Exfoliation with Removal through Suprapubic Cystotomy. S. L. McCurdy, Pittsburg.
106 Congenital Absence of Vertebræ Below the First Sacral, and Malformation of the Lower Cervical and Upper Dorsal Vertebræ. R. R. Fitch, Rochester.

95, 100. Abstracted in THE JOURNAL, Aug. 7, 1909, pp. 478, 479.

103. **Results Following Fracture of Femur.**—Five years ago a well-grown, healthy girl, aged 8 years, was thrown from a horse and suffered a fracture of the left femur near the junction of the middle and upper thirds of the shaft of that bone. It being impossible to adjust the fragments satisfactorily, and there apparently being no union at the end of two weeks, the fractured bone was set by an open operation. The operation wound healed under the first dressing. A pressure sore developed on the heel and another on the dorsum of the foot of the injured limb as a result of the traction. About two months after the operation keloids began to develop in the scars of the pressure sores and the operation wound. At that time the limbs were of the same length as measured by the operating surgeon and the consulting orthopedic surgeon. But after a year it was found that the fractured limb was longer than the other. Two and one half years after the accident, the limb measured an inch longer than the other. Five years after the accident the limb measured two and one-quarters inches more than the uninjured limb. The girl is large, well and active, and, except for the elevation on the shoe of the uninjured side, is unconscious of her disability. In this case there was never any evidence of any injury at any of the epiphyseal junctions; and the appearance of the femur in the *x*-ray picture appears to be conclusive evidence that the increased growth has taken place in the shaft of the bone at the point where it was broken.

The other patient was a boy of average height and slender build, 14 years old. On Nov. 27, 1908, while playing foot-ball he sustained a fracture of the right femur in the upper part of the shaft. Five and one-half weeks after the accident, union appeared to be firm, but the thigh was bowed outward and forward in its upper part, and the limb was 2¼ inches short. Six weeks after the accident Ridlon applied his stretching machine, refractured the femur, made the limb straight, and put it up in full normal abduction, extending from the plaster boot a spica well up on to the ribs. After 2 or 3 days the patient complaining of his heel, a hole was cut and a blister found which ultimately became a pressure sore. There being complaints of the dorsum of the foot, the plaster boot was soon removed. From time to time the plaster spica was shortened at the top and at the bottom until the knee was free, also the ribs on the right side. After 6 weeks the boy was allowed up on crutches, and encouraged to bear some weight on the limb, but it was 12 or 14 weeks before he could walk without his crutches and without pain or weakness. Sixteen weeks after the operation, and 22 weeks after the accident, the splint was removed. The limb was straight and measured ¾ inch less than the other, the gain in length having been 1½ inches. The *x*-ray picture made at this time shows that the lengthening resulted mainly, perhaps wholly, from the pulling downward of the lower frag-

ment. Instead of overlapping the upper fragment 2 inches or more it overlaps it a half-inch or less. Although the *x*-ray picture shows great deformity still present in the bone, the limb as a whole is straight, and the long period of full abduction more than compensates for the ¾ inch of real shortening, and the limb is still practically so long as to be in his way when walking without an elevation to the shoe of the uninjured leg. The results in this case demonstrate the usefulness of the stretching machine in fracture of the shaft of the femur, Ridlon says, when it is desired to treat such fractures with a plaster splint.

Yale Medical Journal, New Haven

April

107 The Army Medical Service. C. F. Craig, U. S. Army.
108 *Fifty Cases Treated by Bacterial Vaccines. J. W. Fisher, Middletown, Conn.
109 Problem of Finding Employment for Tuberculous Individuals. M. G. Markham, New Haven.

108. Bacterial Vaccines.—The 50 cases reported by Fisher occurred in the services of the physicians of the Connecticut Hospital for the Insane and the adjoining city. Fisher prepared vaccines for all of them. They included 18 different conditions and 7 different types of bacteria. Of the 50 patients, 34 recovered much more rapidly than would be expected under usual treatment. One left the hospital after one injection; 2 died; both the latter were practically moribund when treatment was begun. The cases included one of appendical abscess; a suppurating sinus of the leg; two cases of metritis, endometritis and pyosalpinx; 1 case each of hay fever; bronchial asthma; abscess of the gall-bladder; pyelonephritis; infection of the hand; 6 cases of pneumonia; 3 cases of coryza; 4 cases of acne.

West Virginia Medical Journal, Wheeling

April

110 The Early Recognition of Tuberculosis. E. Cummings, Hinton.
111 Appendicitis and the General Practitioner. W. W. Golden, Elkins.
112 Institutional Specialism. T. L. Barber, Charleston.
113 Abortifacient Drugs Simulating Frequently Observed Diseases. G. R. Davis, Price Hill.

The Ohio State Medical Journal, Columbus

April

114 Major Smith's Operation for Cataract. J. W. Millette, Dayton.
115 Clinical Aspects of Visceral Arteriosclerosis. J. H. Schroeder, Cincinnati.
116 Treatment of Clubfoot in Infancy. A. H. Freiberg, Cincinnati.
117 Fistula-in-Ano with Special Reference to Tuberculosis. G. B. Evans, Dayton.
118 Adenoids. G. C. Schaeffer, Columbus.
119 Causation of Extrauterine Pregnancy. J. W. Rowe, Cincinnati.
120 The After-Care of the Insane. G. H. Williams, Columbus.

Bulletin Johns Hopkins Hospital, Baltimore

April

121 The Occurrence of Goiter (Active Thyroid Hyperplasia) in Fish. D. Marine and C. H. Lenhart, Cleveland, Ohio.
122 Presentation of a Portrait of Dr. Ferdinand Edme Chatard to the Medical and Chirurgical Faculty of Maryland. J. W. Williams, Baltimore.
123 Cutaneous Distribution of the Superficial Ramus of the Radial Nerve and its Compensatory Extension. I. Hardesty, Berkeley, Cal.
124 Primary Union after Mastoidectomy. H. O. Relk, Baltimore.
125 Present Attitude of the Tuberculosis Nurse Toward Her Work. E. N. La Motte, Baltimore.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

April 23

1 Treatment of Chronic Disease. R. F. Fox.
2 Diagnostic Value of the Chemical Analysis of the Gastric Contents After a Test Meal. W. H. Willcox.
3 Acute Arthritis of Doubtful Origin. G. B. Buchanan.
4 *A New Method of Treating Acute Pulmonary Tuberculosis by the Alternate Use of Human and Bovine Tuberculin. H. W. Crowe.
5 *Treatment of Exophthalmic Goiter with the Milk of Thyroidless Goats. W. Edmunds.
6 Case of Typhoid Spine. E. R. Carling and L. R. King.
7 *The Minute Structure of the Thyroid. D. C. Watson.

4. New Method of Treating Acute Phthisis.—Crowe has found that a prolonged reaction resulting from the use of either human or bovine tuberculin can be cut short by a dose of the other, provided that there has been developed some degree of hypersensitiveness to the form of tuberculin which excites the reaction. A start is made by an inoculation of 1/100,000 milligram of T. R. (or the bovine tuberculin—P. T. R.—in the most acute cases, as it appears slightly less liable than the former to cause acute reactions). This dose is repeated and gradually increased once in from 7 to 10 days until a definite febrile reaction is provoked, accompanied by signs of an exacerbation in the disease, malaise, etc. The reaction may not appear for 3 or even 6 days after an inoculation, hence the interval between the doses.

This rise of temperature is allowed to continue until it seems to be steady at the higher level or until the physical condition of the patient causes alarm, when a dose of P. T. R., half the quantity of the exciting dose of T. R. (but not as a rule less than 1/100,000 milligram) is inoculated. The next day the temperature may remain up, but the day after, at latest, it will fall, and after a few days there will be found to be a definite improvement in the physical condition of the patient and also in the local lesion. This inhibitory dose is the exception above referred to. It is now advisable to rest for a time, say a fortnight, or until the temperature has again risen, when the same dose of P. T. R. must be repeated and gradually increased, until for a second time a febrile reaction is induced, when it will be found that a dose of T. R. will not have the effect of cutting short the P. T. R. reaction.

Crowe maintains that on general principles autoinoculations should have a greater effect in influencing the course of phthisis for good, than artificial tuberculin; that is, regarding tuberculin merely as an agent which stimulates the system to produce antibodies. But tuberculin itself causes autoinoculation. The power to stop an autoinoculation at will diminishes this danger. By using T. R. and P. T. R. in an alternating fashion, while the patient becomes sensitized to the one form, the power to prevent mischief is vested in the other, and on a continuance of inoculation of that other the inhibitory action is transferred to the former. For a full development of this inhibitory action hypersensibility should be developed, hence small doses should be used because an autoinoculation effect after the first dose or two is not desirable.

5. Treatment of Exophthalmic Goiter.—To the 15 cases previously reported Edmunds adds 4; 3 of the patients were benefited by the milk. Few of the first 15 patients could be traced—and only one of these is in good health.

7. Minute Structure of Thyroid Gland.—The examination of the thyroid by Watson in a series of wild rats, all apparently healthy, has shown wide variations in the histologic appearances of this gland. The source from which the animals were obtained was noted in all instances. Watson is of the opinion that the effects observed indicate that modifications in structure and function of the thyroid occur in association with different environmental conditions. Diet may have been the chief factor in inducing the modifications of structure. In this connection it is of interest to note that it was observed that the thyroid of all the animals from any one source invariably presented the same general characters.

British Medical Journal, London

April 23

8 *Surgical Treatment of Certain Cases of Glycosuria. A. W. M. Robson.
9 Activity of Cells and Fluids of the Body in Prevention and Cure of Disease. J. M. Beattie.
10 *Paleogenesis as Explanatory of Certain Forms of Disease. J. Hutchinson.
11 *Fecal Vomiting During Anesthesia: Method of Obviating its Danger. D. W. Buxton.
12 Postoperative Suppression of Urine. L. R. Braithwaite.
13 Hemolysis by Weever Venom. H. M. Evans.
14 Malarial Fevers and Quinin. J. H. Whelan.
15 Cowpox in Man. R. W. Cruickshank.
16 Complete Transposition of the Viscera: Postmortem Report. G. A. Allan.
17 Defective Nipples. H. B. Billups.
18 Perforation of a Gastrojejunal Ulcer—Operation: Recovery. W. H. Battle.
19 Recurring Jaundice in Mother and Infant. E. N. Nason.

8. Surgical Treatment of Glycosuria.—Robson holds that certain patients with diabetes may be materially benefited, and some even may be cured if the glycosuria be of pancreatic origin; and that a fairly accurate prognosis of the onset of

diabetes may be made by a careful examination of the urine and feces in certain cases at a period long antecedent to the appearance of glycosuria, and that in this early stage the onset of diabetes may be averted by timely surgical treatment. In his review of the subject, he shows that we cannot hope to cure or even materially to relieve, except temporarily, pancreatic diabetes depending on extensive destruction of the gland by organic disease, whether that be dependent on growth or on chronic inflammation, if either class of disease has extensively involved the islands of Langerhans; nor can we hope to benefit that form of inflammation that singles out the cell islets—interacinar pancreatitis. But, unfortunately, by far the greater number of cases of glycosuria due to pancreatitis are dependent on inflammation of the catarrhal type in which the gland is invaded by way of the ducts from varying causes, such as gall-stones, pancreatic calculi, duodenal catarrh (often associated with duodenal ulcer), typhoid fever, etc., and a considerable proportion of these patients, Robson believes, are curable by surgical measures. At a later stage an interstitial inflammation is produced, which may be arrested and decided relief given by surgical means, though the damage already done to the pancreas cannot be repaired. At a still later stage, cirrhosis of the gland takes place, and if the cell eyelets become involved extensively surgical means are quite useless.

The early recognition and treatment of interstitial pancreatitis, or of pancreatic catarrh, by drainage of the bile ducts, and thus indirectly of the pancreatic ducts, and the removal of the cause, whether that be gall-stones, duodenal ulcer or other conditions, may be the means of averting diabetes. In certain diseases of the pancreas, even after the appearance of glycosuria, surgical treatment is well worth considering, as in a number of cases it has led to a complete disappearance of sugar from the urine, and in others to an arrest in the disease causing glycosuria. Every case of diabetes should be considered from its etiologic point of view, seeing that certain cases of glycosuria of pancreatic origin are curable, and in others the progress of the disease may be arrested by suitable surgical methods that can be carried out with very small risk.

10. **Paleogenesis.**—The term "paleogenetic" employed by Hutchinson is applicable to all conditions supposed to be due, wholly or in part, to inheritance from ancestry extremely remote, so much so that in the majority of cases all history of such association has been lost. The possibilities of paleogenesis are not limited by species or genus, but may be recognized in the most distantly related animals. Thus the condition known as the "dappled" skin occurring both in deer and horses Hutchinson now claims for human beings. It is simply a spotted skin in which the spots become visible only under certain conditions. He also holds that we may recognize paleogenetic structural peculiarities in the dappled skin of leucoderma colli, but a similar predisposition is to be traced in xanthelasma palpebrarum, in the common form of leucoderma, and the very curious congenital conditions which have been recognized under the names of linear ichthyosis, ichthyosis herpetiformis, or Biett's bands. The simplest example of paleogenesis is the "linea fusca," which used to be regarded as a symptom attending a first pregnancy, but which obviously is "the abdominal line" conspicuous in many quadrupeds, made visible in most women by the pigment disturbance which often attends pregnancy.

11. **Fecal Vomiting During Anesthesia.**—It is suggested by Buxton that the following method may prove useful in preventing such an occurrence. Lavage may be employed to clean out the stomach and esophagus with boric-acid solution and hot water. The next step is to perform laryngotomy under local analgesia, or even under light anesthesia, but it is essential in the latter case that the laryngeal reflex should remain active, because vomiting or regurgitation may occur while the larynx is being opened and the stomach tube may be expelled, or vomitus travel beside it into the pharynx. As soon as the larynx is opened and a cocain spray used to lessen spasm, chloroform is to be administered through the laryngeal tube to full anesthesia. The mouth is opened by a gag as soon as the patient is analgesic, and a full-sized esophageal tube introduced into the stomach. If the preliminary lavage has been carried out by means of a large tube, and if it has not been expelled, the only further step necessary is to pack very carefully both the upper opening of the larynx and the pharynx around the esophageal tube. As soon as this is done, the free end of the esophageal tube must be allowed to drain into a vessel containing a deodorant and antiseptic. It is essential that the tube be introduced and maintained in the stomach, and that the packing round it be tight. The packing of the larynx is done in exactly the same way as that carried out before an excision of the maxilla, when a preliminary laryngotomy is performed. Packing round the esophageal tube is rendered more easy by cocainizing the pharynx, as it is essential that there shall be no leak of fluid around the tube.

Medical Press and Circular, London

April 13

20 Suppuration in the Maxillary Antrum. J. Donelan.
21 Workmen's Compensation Act as it Affects the Medical Profession. T. S. Kirk.
22 More Recent Conceptions Regarding Hysteria and their Relation to the Traumatic Neurosis. T. A. Williams.
23 Suppurating Appendicitis. A. C. A. Rabagliati.
24 Heat: "Sensible," "Latent" and Pathologic. J. Knott.

Australasian Medical Gazette, Sydney

February

25 Necessity for Organization in the Profession. R. Worrall.
26 Contract Work. E. P. Thurstan.
27 Treatment of Gall-Stone Disease. F. Hinrichsen.
28 Treatment of Trigeminal Neuralgia by Injections of Alcohol. A. W. Campbell.
29 Exclusion of the Skin in Surgery. A. S. Vallack.
30 Intestinal Perforation in an Ambulatory Case of Typhoid: Recovery. H. G. Loughran.
31 An Unusual Form of Intestinal Ulceration Following Abdominal Section. W. C. R. Mainwaring.
32 Bilharzia Hematobia. J. Morton.

Bulletin de l'Académie de Médecine, Paris

April 12, LXXIV, No. 14, pp. 341-351

33 *Intracranial Dermoid Cysts. Differentiation by Adherence of Skin to Bone. O. M. Lannelongue.
34 *Test of Purity of Milk by Estimation of Catalytic Power. (Détermination indirecte de la richesse bactérienne des laits de vache: Epreuve catalasimétrique.) J. Sarthou.

33. **Intracranial Dermoid Cysts.**—Lannelongue describes a case in which the adherence of the scalp to the occipital bone confirmed the diagnosis of a dermoid cyst in the cerebellum. He discusses the development of such cysts, seeking to sustain their ectodermic origin.

34. **Catalytic Test for Purity of Milk.**—The catalytic action of milk in respect to a solution of hydrogen dioxid is an index of the number of bacteria it contains, and this test is currently applied, it is stated, in the Netherlands. The intensity of the reaction is gaged by the volume of oxygen liberated in 40 c.c. of milk treated with 10 c.c. of solution of hydrogen dioxid at from 20 to 25 C. (from 68 to 77 F.).

Presse Médicale, Paris

April 13, XVIII, No. 30, pp. 265-272

35 *Local Anesthesia and Major Operations. H. Chaput.
36 Cancer Metastasis by Retrograde Invasion of the Lymphatics. (Les métastases cancéreuses par envahissement lymphatique rétrograde.) E. Geraudel.

April 16, No. 31, pp. 273-288

37 *Malformations of Syphilitic Origin. (La syphilis dysplasique.) P. Delbet.
38 *Serodiagnosis of Syphilis. (Séro-diagnostic de la syphilis d'après les résultats enregistrés à l'institut Pasteur au cour de l'année 1909). C. Levaditi and A. Lataple.
39 *Pathogenic Treatment of Tabes and Paresis. (Traitement pathogénique des affections nerveuses parasyphilitiques.) A. Sézary.

35. **Local Anesthesia for Major Operations.**—Chaput has performed 37 major operations lately under local anesthesia, including amputation of the breast or arm, resection of the shoulder, hysterectomy and 25 laparotomies. His technic is somewhat similar to the Schleich method, but he uses large amounts of a weak solution of the anesthetic, injected with large syringes, thus infiltrating the tissues extensively step by step with the operation. Much of the fluid escapes again as the incision is made.

37. **Disturbances in Development.**—Delbet is convinced that syphilis is responsible for more evil than it generally is credited with. He obtained a positive Wassermann reaction in 7 children with a congenital affection of the nervous system, Little's syndrome, contractures, etc., although there was

nothing otherwise to suggest syphilis. The reaction was positive also in a case of cleft palate and one of diffuse angioma.

38. **The Wassermann Reaction at the Paris Pasteur Institute.**—This article tabulates the results of the Wassermann test applied to 821 persons during 1909. The findings were positive in 92 per cent. of the patients with syphilis of less than two years' duration, in 63 per cent. of those of over two years, and 0 per cent. in 18 cases in which syphilis could be excluded; they were also positive in 70 per cent. of the cases of paresis and in 60 per cent. of tabes. The method proved valuable for the retrospective diagnosis of syphilis.

39. **Pathogenic Treatment of Syphilitic Nervous Disease.**—Sézary explains tabes and general paresis as the result of an early reaction in the meninges to the syphilitic infection. It does not manifest itself at the time in any way except by a leucocytosis in the cerebrospinal fluid. Given mercurial treatment at this stage it is readily cured, and he consequently advises prompt mercurial treatment when lumbar puncture reveals evidences of the specific irritation of the meninges persisting after subsidence of the superficial manifestations. The inconvenience of the explorative lumbar puncture is far outweighed, he asserts, by the danger from the ignored meningeal trouble which is liable to progress to tabes or general paresis but which it is thus possible to nip in the bud.

Semaine Médicale, Paris

April 20, XXX, No. 16, pp. 181-192

40 Characteristics of the Venous Jugular Pulse in Asystole of the Left Side of the Heart. (Les caractères du pouls veineux jugulaire dans l'asystolie du cœur gauche.) L. Bard.

Archiv für Verdauungs-Krankheiten, Berlin

XVI, No. 2, pp. 121-266

41 *The Misleading Evidences of Radiology of the Stomach (Kritische Glossen eines Klinikers zur Radiologie des Magens.) B. Stiller.

42 *Changes in the Gastric Mucosa after Exclusion of the Pylorus. (Veränderungen der Magenschleimhaut nach Pylorusausschaltung.) A. Jianu and J. Grossman.

43 *Intermittent Spasm of Both Pylorus and Cardia as Reflex Neurosis with Gall-Stone Disease. (Intermittierender Spasmus der beiden Magenpforten als Reflexneurose bei Cholelithiasis.) W. Buettner.

44 Experiences with Radiology of the Esophagus, Stomach and Intestines. (Unsere Erfahrungen in der Radiologie des Digestionstraktus.) J. Hürter. Commenced in No. 1.

41. **The Misleading Findings with Radioscopy of the Stomach.**—Stiller says that at first he meekly accepted as beyond appeal the dictum of the radiologists that the cylindrical or steer's horn shape of the shadow cast by the bismuth emulsion in the stomach represented the normal shape of the stomach. This finding was entirely at variance with his thousands of examinations of the stomach by other means and with those of physiologists the world around, but the radiologists merely pointed to their radiographs and facts seemed to speak louder than words. But now he raises his voice in protest and describes experimental and clinical research which has demonstrated that the peculiar steer's horn shape is not the normal shape of the stomach but is the specific reaction of the stomach walls to the action of the clinging particles of metal in the emulsion. The shadow cast is instructive as to the effect of bismuth on the stomach, but it throws no light on the shape and behavior of the stomach in the absence of bismuth. The stomach walls contract under the influence of the bismuth quite differently from the contraction with ordinary food. Artificial distention of the stomach with air or gas is, he declares, by far the most reliable means of determining the normal shape of the stomach.

42. **Behavior of the Gastric Mucosa After Exclusion of the Pylorus.**—The history of this operation and experiences with it to date in various clinics are reviewed and also the results of experiments on dogs to show the changes in the gastric mucosa after the operation. It is far preferable to gastroenterostomy alone, the writers conclude, if pylorectomy is impossible for any reason. Cutting the pylorus away from the stomach and suturing each stump to make a blind pouch of it removes the ulcer from the action of the digestive juices, etc., while the excluded stomach mucosa rapidly develops vacuolar degeneration, thus providing conditions, they state, that favor the healing of the ulcer and ward off hemorrhage, perforation and cancerous degeneration later.

43. **Intermittent Spasm of the Stomach as Reflex Neurosis with Gall-Stones.**—Buettner's patient was a man of 38 who had no suspicion of his tendency to cholelithiasis and his recurring gastric spasms had long been supposed to be a primary neurosis. The attacks commenced with severe oppression and pain in the stomach region and the stomach was seen to be distended with gas, but the pulse was regular and not faster than usual and there was no tendency to labored breathing. The attacks sometimes lasted for hours but there was never any vomiting. The motor functioning was also much exaggerated during the attack. The development of jaundice finally led to examination of the stools when it was found that gall-stones could be discovered in the stool sooner or later after each of the spasmodic attacks. If there had been no jaundice the mystery might never have been cleared up as the functional tests showed during the attacks various anomalies which were assumed at first to be the cause instead of the result. The pain in the stomach was so severe that it masked any possible gall-stone colic. He was unable to find any similar case on record in which the well-defined gastric syndrome was exclusively the result of a reflex neurosis, but he thinks that this may occur more frequently, unrecognized. After passing 238 gall-stones his patient seemed to be permanently relieved and has been free from jaundice and from all gastric disturbances to date.

Berliner klinische Wochenschrift

April 11, XLVII, No. 15, pp. 661-708

45 Importance of Chlamydozoa in Trachoma and Gonorrhea. L. Halberstaedter and S. v. Prowazek.

46 *Prowazek's Bodies in Conjunctival and Genital Secretions. (Fundorte der Prowazek'schen Körperchen.) B. Heymann.

47 Rupture of the Aorta in Pyemia. H. Scheuer.

48 Extraperitoneal Cesarean Section. (Extraperitonealer Kaiserschnitt: Solms'sche Methode.) H. Töpfer.

49 *"Thirst Fever" in Infants. (Durstfieber bei Säuglingen.) E. Müller.

50 Treatment of Habitual Dislocation of the Shoulder. (Zur Behandlung der habituellen Schulterluxation.) E. Marcuse.

51 Dislocation of Tarsometatarsal Joint. (Luxation im Lisfranc'schen Gelenk.) P. Ewald.

52 Alcohol-Soluble Hemolysins in Acute Yellow Atrophy of the Liver. M. Jacoby.

53 Ease and Importance of Direct Visual Inspection of Upper Air Passages. (Direkte Untersuchungsmethoden der oberen Luftwege.) E. Meyer.

46. **The Prowazek Trachoma Bodies in Conjunctivitis and Gonorrhea.**—Heymann has examined the conjunctival secretion from 235 human beings and from 25 animals of 5 different species, including monkeys, but was never able to find the Prowazek bodies except in cases of trachoma and eye affections resembling trachoma, and in conjunctivitis in infants, and he also discovered the bodies in question in 2 cases of urogenital gonorrhea; these patients were the parents of twins each of which had severe conjunctivitis containing numerous gonococci and these bodies. Prowazek has reported similar findings in another family. This throws light on the nature of the bodies, especially as inoculation of monkeys and guinea-pigs with the conjunctival or urogenital secretions containing the bodies induced a conjunctivitis of gonorrheal type at first but later more of a follicular catarrhal form. In the animals thus inoculated the Prowazek bodies were found in large numbers in the conjunctivitis secretions. He found further that inoculation of genital secretions from patients with a history of conjunctivitis suggesting trachoma induced the same effects in the animals as inoculation of secretions containing the Prowazek bodies. [An editorial note on another page of the *Wochenschrift* states that Herzog, who has been making a special study of these bodies at Budapest, now announces that the Prowazek bodies are merely an involution form of the gonococcus.—ED.]

49. **Thirst Fever in Infants.**—Müller reports that fever developed in some infants who were resisting a change of diet and whom he was trying to accustom to the bottle or the breast by starving them to it. He describes two cases in detail, calling attention to the reciprocal relations between the weight and the temperature; whenever the weight showed that the children were suffering from insufficient intake of fluids, the temperature rose, while it declined again when tea was given. He is inclined to regard this thirst fever as the direct result of the concentration of the body juices, an alimentary, or rather negative alimentary fever, analogous to the "salt

fever" observed in infants. These experiences suggest that the custom of compelling a change of food by starving the children to it may have serious consequences; and also that salt fever may occur without any lesion of the intestines. Possibly the reduced elimination of water through lungs and skin may be partly responsible for the higher temperature. Müller refers to Crandell's report in 1899 of similar cases of fever, in which the temperature rose during abstention from fluids. It was first called "starvation fever," but Müller prefers the term "thirst fever."

Deutsche medizinische Wochenschrift, Berlin

April 14, XXXVI, No. 15, pp. 689-736

54 Treatment of Pneumothorax. G. Treupel.
55 Experimental Research on Epidemic Poliomyelitis. (Experimentelle Untersuchungen über akute epidemische Kinderlähmung.) E. Meinicke.
56 Shape of Stomach with Atony, Ptosis or Ectasia. (Form des pathologischen Magens.) F. M. Groedel.
57 Importance of the Colloids for Formation of Concrements and for Calcification. (Bedeutung der Kolloide für die Konkrementbildung und die Verkalkung.) L. Lichtwitz.
58 *Influencing the Pulse by External Pressure on the Blood Vessels. (Bradycardie und Beeinflussung des Pulses durch äusseren Druck auf die Blutgefässe.) E. Homberger.
59 Epicondylitis of the Humerus. G. Preiser.
60 Relations between Alcoholism and Nursing Capacity, Pulmonary Tuberculosis and Dental Caries. H. J. Greff.

58. **Changes in the Pulse Curve by Changes in External Pressure.**—Homberger gives the tracings in the case of a man of 50 complaining of dyspnea. The apex beat and heart sounds were not perceptible; the area of dulness was unusually wide. The pressure of the cuff altered the features of the pulse in one arm while the pulse in the other arm showed no such change. Homberger accepts these and similar findings in other cases as sustaining his assumption that the circulation of the blood does not depend on the heart alone but that the task is shared equally by the heart and the blood vessels.

Jahrbuch für Kinderheilkunde, Berlin

April, LXXI, No. 4, pp. 379-524

61 Metabolism in Course of Alimentary Decomposition. (Ueber den Stoffwechsel bei der alimentären Dekomposition.) L. F. Meyer.
62 *Orthostatic Albuminuria. F. Götzky.

62. **Orthostatic Albuminuria.**—Götzky has examined for albuminuria 346 children between the ages of 5 and 13. He found that 14.5 per cent. showed signs of orthostatic albuminuria, that is, 189 girls and 157 boys. There did not seem to be any more pronounced tendency to neuropathies among these children than among their mates, although enlarged tonsils or chronic pharyngitis were more frequent among them. He found no trace of pathologic lordosis among a large number of the children, while true lordosis was quite frequent among children free from any tendency to albuminuria. He discusses the diagnosis of orthostatic albuminuria, the favorable prognosis, etc., emphasizing the necessity for prophylaxis as the main point in treatment. The children should be protected against chilling, especially against getting their feet wet. The albuminuria itself should be left untreated. Overexertion should be guarded against but ordinary play and sports in moderation are to be encouraged. Heubner warns against bicycling, horseback riding and rowing as liable to be too violent exercise in such cases.

Medizinische Klinik, Berlin

April 10, VI, No. 15, pp. 571-612

63 Roentgen-Rays, Radium and Carbon Dioxid Snow in Treatment of Skin Diseases. (Neuere Methoden der Dermatotherapie.) W. Pick.
64 *Pathology of Banti's Disease. H. Luce. Commenced in No. 14.
65 *Serotherapy of Cerebrospinal Meningitis. M. Lateiner.
66 Tuberculin-Quinin Treatment of Kidney and Bladder Tuberculosis. W. Karo.
67 Permanent Action of Carbonated Brine Baths in Circulatory Disturbances. B. Schuster.
68 Importance of Systematic Weighing in Medical Treatment. J. G. Siebelt.
69 Sterilization of Drinking Water by Ultraviolet Rays from Quartz Mercury Vapor Lamp. (Sterilisation des Trinkwassers durch ultraviolette Strahlen.) J. Courmont and C. Nogier. (Apparat zur Sterilisierung von Trinkwasser durch die ultravioletten Strahlen.) C. Nogier.

April 17, No. 16, pp. 613-652

70 Research on Radium Emanations. W. Bils.
71 *Management of Narrow Pelvis in Obstetric Cases in the Home. (Behandlung des engen Beckens in der Aussenpraxis.) O. von Franqué.
72 *Active Immunization by Killed Vaccine Virus. (Aktive Immunisierung des Menschen mittels abgetöteter Pockenvakzine.) W. Knöpfelmacher.
73 Contents in Purin Bases of Various Articles of Food in Relation to Gout. (Zum Wesen und zur Behandlung der Gicht. Ueber den Purinbasengehalt der Nahrungsmittel.) T. Brugsch and A. Hesse.
74 *Autoserotherapy of Tuberculous Peritonitis by Autodrainage. (Autoserotherapie bei Bauchfelltuberkulose durch Dauerdrainage des Aszites unter die Haut.) K. Evler.
75 Importance of Wassermann Reaction for Balneologists and Physicians at Health Resorts. M. Friedlaender.
76 Research on and Application of Radium Emanations. (Demonstrationen zur Emanationstherapie.) S. Loewenthal. (Ungeregelte Verhältnisse bei Bestimmung und Bewertung der Radiumemanation.) E. Weisz.

64. **Banti's Disease.**—Luce gives the details of a typical case and discusses the history and literature of the subject. He is inclined to admit that the disease is similar to true pseudoleucemia and other pathologic processes originating in the spleen. The spleen process may be idiopathic, tuberculous or syphilitic or of other origin. The demonstration of a tuberculous etiology has not yet been made, but such probably exists, similar to the tuberculous form of pseudoleucemia described by Sternberg and the data presented by Fischer, Sabrazès and others in regard to certain forms of pseudoleucemia in which no tubercle bacilli could be discovered in the lymphomas and yet inoculation of animals with lymphoma tissue gave positive results. He thinks it probable that the spleen, serving as a filter for the blood may become injured by any severe infection of the blood or repeated mild infections, and that this may be the origin of the development of the Banti syndrome. The peculiar vulnerability of the lymphatic system in the young explains, he says, the frequency of the Banti syndrome before the age of 30.

65. **Serotherapy of Epidemic Cerebrospinal Meningitis.**—Lateiner reports 26 cases with encouraging results of serotherapy.

71. **Treatment of Narrow Pelvis in the Home.**—The advantages of institutional management of obstetric narrow pelvis are emphasized by von Franqué but he also outlines the measures that should be advised for use by the general practitioner when this is impossible. In regard to perforation he remarks that if any one has conscientious scruples against it he should not attempt obstetric practice. Not until every parturient with a narrow pelvis is delivered in a maternity can this operation be spared.

72. **Active Immunization by Killed Vaccine.**—Knöpfelmacher reports successful subcutaneous injection of vaccine which rendered the individual immune thereafter to ordinary vaccination. This immunity was realized without development of a pustule. He tabulates the findings in 20 cases. The research reported shows that human beings as well as animals can be rendered immune by subcutaneous injection of killed germs. The vaccine was heated to 58 C. 30 minutes to "kill" it.

74. **Serotherapy in Tuberculous Peritonitis: Autodrainage.**—Evler has applied to tuberculous ascites the principle of autodrainage recently introduced in treatment of hydrocephalus. In a patient with recurring ascites from tuberculous peritonitis he found the peritoneum studded with nodules. He separated the recti muscles and sutured the peritoneum in the opening thus made, producing a permanent fistula opening into the subcutaneous tissue. The skin was sutured completely above. The ascites was thus drained away while the diversion of the ascitic fluid induced an autoserotherapy. Improvement was marked from the start; the ascites did not recur and the patient rapidly regained 25 pounds in weight. He was a man of 32 and the peritoneal affection seems to be entirely cured, Evler says, although there is still some cough and the man complains of pains in the chest and back as before the operation.

Münchener medizinische Wochenschrift

April 12, LVII, No. 15, pp. 777-832

77 Effectual Action of Single Large Dose of Arsobenzol in Relapsing Fever. (Wirkung des neuen Arsenpräparates (606) Ehrlichs bei Rekurrens.) J. Iversen.
78 *Treatment of Diffuse Peritonitis with 1 per cent. Camphorated Oil. G. Hirschel.
79 Advantages of the Mirror Sphygmograph for Study of the Pulse. (Vorzüge des O. Frankschen Spiegelsphygmographen für die Aufzeichnung der Pulsform.) E. Veiel and B. Noltenius. (Vergleich des O. Frankschen Spiegelsphygmographen mit dem Jaquetschen Kardiosphygmographen bei Aenderungen des Pulsrhythmus.) H. Schmid

80 Albumin Reaction in the Blood of the Insane. (Eine Eiweissreaktion im Blute Geisteskranker.) W. Geissler.
81 *Iron Splinters in the Crystalline Lens. (Zur Therapie der Eisensplitterverletzungen der Linse.) A. Elschnig.
82 *Serotherapy of Tetanus. (Tetanus traumaticus mit Antitoxin "Hochst" und Blutserum eines geheilten Tetanuskranken geheilt.) A. Wiedemann.
83 Improved Technic for Obtaining Blood for the Wassermann Reaction. (Ein schonendes Verfahren der Entblutung von Tieren zu Zwecken der W. Reaktion.) J. Wetterer.
84 Indications and Contraindications for Ergot in Obstetrics. (Zur Anwendung der Ergotinpräparate in der Geburtshilfe.) H. Walther.
85 *Adherent Pericardium and Cardiolysis. (Ueber adhäsive Perikardobliteration und Kardiolyse.) K. Schlayer.

78. Treatment of Diffuse Purulent Peritonitis with 1 Per Cent. Camphorated Oil.—Hirschel reports 9 additional cases, supplementary to 3 reported in 1907, in which from 100 to 300 gm. of 1 per cent. camphorated oil were introduced into the abdominal cavity and spread over the intestines and walls by the hand wrapped in gauze. A counter incision was then made and small drains inserted at various points and the abdomen closed almost completely. The oil seems to prevent absorption by the peritoneum, while the addition of the camphor has a tonic action. This procedure was not attempted except in the desperate cases, and the recovery of 55 per cent. in the last series confirms the favorable action of the measure. The main benefit is probably mechanical, either by stopping the efferent lymphatics or by clogging the bacteria in the oil, similar to the action of Peruvian balsam in infective wounds. He adds that Hoehne has reported good results in 42 cases with introduction of 30 c.c. of 10 per cent. camphorated oil as a prophylactic measure before extensive gynecologic operations.

81. Treatment of Iron Splinter in the Crystalline Lens.—Elschnig reports several cases of splinter of iron in the transparent lens and four in which the splinter had induced cataract. In one in the first group the perforation in the anterior capsule had already closed up entirely but he succeeded in opening the capsule and extracting the foreign body without impairing the transparency of the lens. It has been his experience that the cataract from an iron splinter is not hard, as generally supposed, and that up to the age of 40 the foreign body may be successfully extracted.

82. Serotherapy of Tetanus.—Wiedemann injected in a child with threatening traumatic tetanus about 35 c.c. of serum from 100 c.c. of blood taken from a healthy boy of 14, who two years before had recovered from very severe tetanus. This serotherapy was supplemented by antitetanic serum. The patient promptly recovered and the sudden improvement after the human serum had been injected seems to indicate, he thinks, that it had special efficacy. There have been 3 cases in Wiedemann's district in the last thirty years in which persons just after death from tetanus made sudden movements, the convulsive contraction thus being arrested by beginning decomposition which evidently nullified the action of the tetanus toxin. This suggests that possibly blood serum taken from a tetanus patient (or possibly from a healthy person) after being left a few hours outside of the body, might prove effectual in treatment of tetanus; the condition of the serum then would approximate that directly after death from tetanus.

85. Adherent Pericardium and Cardiolysis.—Schlayer knows of only 9 cases in which Brauer's technic of cardiolysis has been applied outside the Tübingen clinic where the operation has been done also in 3 cases, all in the year 1906. The results in these 3 cases are not very encouraging; the operation was followed by sudden paralysis of the heart in one case and no benefit was observed in the second and but transient in the third. He analyzes 12 cases of polyserositis at the clinic with or without weakness of the heart, his final conclusions being that the indications for operative treatment of adherent pericardium depend more on the general tendency to polyserositis than on the involvement of the heart. When the polyserositis is extensive and progressive, little benefit can be anticipated from cardiolysis. In one of his cases a simple laparotomy was followed by retrogression of the main disturbances, the ascites no longer recurring. He adds that the ultimate outcome in the cases of cardiolysis in the literature has not been reported, although great benefit was derived at once from the operation which released the adherent heart from its extra work in moving the chest wall.

Therapeutische Monatshefte, Berlin

April, XXIV, No. 4, pp. 169-224

86 *Medical Reprints and the Advertising of Proprietaries. (Reklame durch Sonderabdrücke.) W. Heubner.
87 *Hot Gelatin Injections in Chronic Catarrh of the Large Intestine. L. von Aldor.
88 Cholelithiasis Generally a Disturbance in the Metabolism of the Liver. (Ist die Cholelithiasis eine Stoffwechselkrankheit der Leber, oder ist sie eine Infektionskrankheit?) C. B. Schürmayer. Commenced in No. 3.
89 Elimination of Bromin by the Urine. II. (Ausscheidung von anorganischem und organisch gebundenem Brom durch den Urin nach Einfuhr organischer Brompräparate.) E. Bermann.

86. Medical Reprints and the Advertising of Proprietaries.—Heubner comments with approval on the step taken by the *Therapeutische Monatshefte* in refusing to give manufacturing chemists reprints of articles that have appeared in its columns. The manufacturers have hitherto been using reprints of this kind to distribute as literature on their products. Heubner remarks on the credulity with which physicians are impressed with the alleged virtues of new drugs, saying that they are unable to judge new drugs for themselves as they can judge fakes of other kinds. The true value of the drug, he continues, cannot be estimated from the first few laudatory reports on its action. Any physician giving the drug during this tentative stage should appreciate that he is merely giving it a trial, and should watch its effects with the closest care and in the most critical spirit. The physician under these circumstances must be strictly impartial, free from any bias in favor of the drug. But the interests of the manufacturing chemists are all against this impartial study of a new drug. They want to push the drug into prominence and general use at once, and seek by every means to influence the physician's mind. The suggestive name, the way the preparation is put up, the profuse advertising, the alluring prospectus and distribution of free samples—all combine to arouse interest in the drug. Medical men are not so readily influenced by suggestions from patients and the general public, but they are swayed by what other physicians have to say in regard to a new drug. Hence it has long been the custom for pharmaceutic firms to send with their advertising matter reprints giving a favorable opinion on a new drug. Heubner remarks that it has happened that such articles have been written to order. But, as a rule, he continues, they are the honest expression of the authors' opinion. They can only rejoice that wide circles are thus enabled to benefit by the fruit of their labors. The business end of the medical journal profits by it, and the editorial department has become habituated to regard the custom as a matter of course. Heubner asserts, however, that the custom is not the expression of a healthy interrelation between the medical profession, the medical press and the manufacturing chemists. Logical as it may seem to post physicians in regard to the qualities of new drugs, the impression produced by this custom is a false one. It leads to exclusively favorable impressions as it is manifest that only articles containing a favorable verdict on the drug are distributed by the manufacturers. Critical or denunciatory articles are not included in the literature sent out. The information which the physician receives from the manufacturers by means of the reprints is thus one-sided and false. Not only do the contents of the reprints serve to sustain the claims made for new drugs but the names of well-known writers and, with unknown names, the prestige of the medical journal from which the reprint is taken—all help in the advertising campaign. It is thus evident that by supplying reprints to manufacturing firms, authors and editors, consciously or unconsciously, Heubner says, are working in the interests of the commercial houses, while they are working against the interests of physicians seeking to obtain an unprejudiced, objective impression of the new drug. A journal which strives to keep its readers informed in the most comprehensive, non-partisan manner on the special field of science to which it is devoted annuls the ideal uses which it cherishes by giving to outsiders a selection from its articles and permitting their distribution in the form of reprints outside the sphere of its responsibility. The physician trusting to the guidance of the journal is thus led astray. Heubner thus

regards it as impossible for a high-class medical journal to continue this custom of supplying reprints to commercial firms. He adds that it must gradually penetrate deeper into the consciousness of medical men that the present-day influence of pharmaceutical industry on medico-therapeutic thought and action is in many ways more powerful than conducive to the interests of the sick and of science. A reduction of this influence will rather promote than check true progress in therapeutics.

87. **Treatment of Chronic Intestinal Catarrh with Hot Gelatin.**—The large intestine is favorably influenced in catarrhal conditions by injection of a very hot solution of gelatin, says von Aldor. He reports 7 cases in detail in which this treatment was followed by a complete cure of severe chronic catarrh of the large intestine, with diarrhea, which had resisted all other measures. The sphincter and a short distance above are extremely sensitive to heat, and consequently the solution is injected through a tube about 5 inches long, with the patient reclining on the left side. From 40 to 80 c.c. (1 or 2 ounces) of a 10 per cent. solution of gelatin dissolved in water at a temperature of 45 or 52 C. (113 to 125 F.) are injected. The patient lies still for two hours afterward with heat applied to the abdomen; von Aldor has always used for the solvent water Carlsbad sprudel thermal water, as he practices at Carlsbad. Gelatin is a valuable food in gastrointestinal disturbances with intolerance of meat, etc., and it has a local soothing action on inflamed mucosa, while the heat induces a healing hyperemia; the lime content may have also a favorable influence on the local repair. It is further possible, he thinks, that the gelatin may check the secretion by the intestine walls of the readily putrefying fluid to which Schmidt ascribes diarrhea. This assumption is sustained by the prompt arrest of diarrhea and rapid transformation of a strongly positive into a negative response to the fermentation test. In the cases reported the course of daily injections lasted from 18 to 28 days; in the one case with complicating cholecystitis he alternated the gelatin with simple hot thermal water injections. Michaelis has applied hot gelatin injections to arrest typhoid hemorrhage and found them entirely harmless. Weil and two other French writers have reported that gelatin by the mouth and subcutaneously proved more effectual than bismuth and tannin in the diarrhea of infants.

Wiener klinische Wochenschrift, Vienna

April 14, XXIII, No. 15, pp. 529-572

90 *Treatment of Pulmonary Tuberculosis with Artificially Induced Pneumothorax. A. Baer and H. Kraus.
91 Mercury and the Wassermann Reaction. (Quecksilberwirkung und Syphilisreaktion.) C. Bruck and M. Stern.
92 Clinical Trials of Radium Emanations. K. v. Kleckl.
93 Ultramicroscopic Examination of Spermatic Fluid. (Männliche Geschlechtsdrüsensekrete in der Dunkelfeldbeleuchtung.) H. Königstein.
94 *Special Dispensary for Leg Ulcers. (Bericht über das erste Halbjahr der Spezialstation zur Behandlung von Unterschenkelgeschwüren.) R. L. Grünfeld.

90. **Treatment of Pulmonary Tuberculosis with Artificially Induced Pneumothorax.**—Baer and Kraus give an illustrated description of the technic applied to induce therapeutic immobilization of the lung in 6 cases. The results showed that this method of treatment may prove successful in a certain class of severe cases in which the physician is otherwise disarmed.

94. **Treatment of Leg Ulcer.**—Grünfeld describes the experiences at the special leg ulcer dispensary opened six months ago by the Vienna Krankenkassen exclusively for treatment of this class of patients. In the majority of cases a zinc oxid stiff dressing was applied in the form of Unna's "Zinkleim." This is a mixture of 75 parts white gelatin dissolved in 250 parts boiling water with 75 parts zinc oxid and 125 parts glycerin.

Gazzetta degli Ospedali e delle Cliniche, Milan

March 31, XXXI, No 39, pp. 409-416

95 Staining Technic for Spores. (Del comportamento dei batteri e delle spore uccise di fronte alle sostanze coloranti e di un metodo rapido di colorazione delle spore.) A. Missiroli.

April 3, No. 40, pp. 417-432

96 Pain in the Celiac Plexus. (Il dolore celiaco.) A. De Giovanni.
97 *Pseudoleucemia and Inheritance of Cancer. P. Melloni.

April 5, No. 41, pp. 433-440

98 Cancer with Cirrhosis of the Liver. (Cancro cirrosi del fegato.) G. Fabiani.

April 7, No. 42, pp. 441-448

99 Differing Etiology of Rachitis and Osteomalacia. (La clinica e sfavorevole all'unita etiologica della rachitide ed osteomalacia.) T. Silvestri.

97. **Pseudoleucemia and Inheritance of Cancer.**—The patient was a boy of 7 with fatal pseudoleucemia; his great uncle, grandmother and an uncle had died of cancer. A second cousin also had a lymphosarcoma of the neck.

Policlinico, Rome

April 17, XVII, No. 16, pp. 483-514

100 Epidemic of Mild Typhoid. (Ricerche batteriologiche nell'attuale epidemia di Albano Laziale.) D. De Blasi.

Riforma Medica, Naples

April 4, XXVI, No. 14, pp. 367-392

101 *Effect on Blood Serum of Experimental, Long-Continued Small Doses of Quinin. (Il siero di sangue negli animali chinizzati.) D. De Sandro.
102 Technic for Showing the Capsule of Anthrax Bacilli. (Dimostrazione della capsula del bacillo del carbonchio nelle culture.) G. Fusco.
103 Senile Appendicitis. E. Martini.

April 11, No. 15, pp. 393-420

104 Seroreaction in the Healthy to the Colon and Typhoid Group of Bacteria. S. P. Tria.
105 Operative Treatment of Stab Wounds of the Lungs: Two Cases. (Cura delle ferite penetranti del torace con lesione polmonare.) A. Fontana.
106 Case of Primary Sarcoma of the Tongue, Supposed Thirty-second on Record. (Sarcoma della lingua.) G. Serafini.

101. **Effect on the Blood of Long-Continued Quinin Prophylaxis.**—De Sandro reports research on dogs given 40 c.c. of quinin for each 70 kilograms of weight, the administration being kept up for from 2 to 4 months. None of the properties of the blood serum seemed to be altered, neither the color, transparency, toxicity, freezing point, proportion of chlorids, sulphates, nitrogen, ash, etc., showed any modification. The only change detected was finally a slight increase in the specific gravity and of the quantity of organic elements so that the dry residuum rose from 0.239 to 0.664 per cent. by the close of the fourth month.

Hygiea, Stockholm

February, LXXII, No. 2, pp. 97-224

107 Ovarian-Tubal Pregnancy. (Ett ovanligt fall af extrauterin-graviditet.) A. O. Lindfors and T. J. Hellman.
108 *Five Cases of Latent Stenosis of the Pylorus. R. Dahl.

Supplement to Vol. LXXI, pp. 1378-1406

109 *Conclusion of Monograph on Tuberculin Diagnosis of Pulmonary Tuberculosis. (Om Koch's gamla tuberkulin vid kronisk lungtuberkulos ur praktisk-diagnostisk synpunkt enligt nyare erfarenhet.) J. Tillman.

108. **Latent Stenosis of the Pylorus.**—This condition is liable to be mistaken for a gastric neurosis as the symptoms may all subside after the attack and the patient may feel entirely well during the intervals. The lack of any history of gastric ulcer in some cases is also misleading. The attack of cramp-like pain in the epigastrium resembled the gastric crises of tabes in 2 of Dahl's 5 cases reported in detail. Hyperacidity is the rule for a time at least afterward and some degree of motor insufficiency, but conditions in regard to motor functioning may soon return entirely to normal. The intermittent, periodical character of the attacks and the lack of tenderness in the stomach region during the intervals are characteristic. Oettinger has published a case of the kind entitling it "unrecognized stenosis of the pylorus," but Dahl declares that it is easy to recognize if the above characteristics are borne in mind. The patients have been free from all disturbances since operative treatment, pylorectomy or gastroenterostomy. Three of his patients were 30 or 32 years old, the others were 56 and 70. The attacks had recurred with increasing frequency during from 1 to 9 years before an operation was decided on. In every case, he asserts, cure was instantaneous and complete. One of the younger patients seems to have been cured at the same time of incipient pulmonary tuberculosis.

109. **Tuberculin in Diagnosis of Pulmonary Tuberculosis.**—Tillman's article is accompanied by the tabulated details of 100 cases of chronic pulmonary tuberculosis in all of which the course confirmed the findings of the "old" tuberculin test.

STATE BOARD STATISTICS FOR 1909

THE ANNUAL PRESENTATION OF RESULTS OF STATE BOARD EXAMINATIONS WITH ANALYSES AND DEDUCTIONS

On pages 1740 to 1755 will be found four tables, A, B, C and D, giving in detail the results of the various state medical license examinations held during 1909. Complete reports from Alabama were received for only one of the two examinations held; otherwise our returns are complete.

These tables have been arranged so that, read from left to right, they give the results by colleges, showing how many graduates appeared for examination in each state and whether they passed or failed, as well as the total number examined during the year, the number who passed, the number who failed, the percentage of failures and the number of states in which graduates of each school appeared for examination. Read from above downward, they give the results by states, showing the number registered and rejected from each college, the total number examined, the total number registered, the total number rejected and the percentage of rejections. The fact that the majority of graduates take the license examination in the state in which the college is located is shown by the dark diagonal zone made by the grouping of figures, passing from the left upper to the right lower corner of each table. These tables are worthy of much careful study and many important deductions are possible.

Caution in Forming Conclusions

In making comparisons on the basis of these statistics several factors should be carefully considered. The number examined is important since, if all other conditions are equal, the larger the number of graduates examined, the more accurate is the finding. But other conditions are seldom equal. The number of states in which a school's graduates have been examined is important. The larger this number the more accurate will be the conclusions. Again, the character of the board making the examination and the methods employed are important factors to be considered, since some boards mark severely while others, especially partisan boards, may be very lenient. Finally, in this connection it should be stated that the character of the license examination as usually conducted at the present time is such that graduates of colleges conducted largely by quiz-class methods may easily be successful in passing them. Therefore, the statistics herewith presented should be taken only as part of any investigation of medical schools, although it is an important part.

Graduates of all Years Examined in 1909

Table A shows the results for all candidates who took examinations in 1909 regardless of the years in which they graduated. This shows that altogether 7,287 were examined last year as compared with 7,770 in 1908 and 7,271 in 1907. Of those examined 19.6 per cent. failed, as compared with 21.7 per cent. in 1908, 21.3 per cent. in 1907, and 20.7 per cent. in 1906.

There were 134 of the medical colleges in the United States which had graduates examined. Foreign graduates were examined in 22 states, the total number being 101. The largest number examined in any state was 44 in New York, doubtless because that state has the leading port of immigration. Graduates of Canadian schools were examined in 27 states, more appearing naturally in the border-line states.

Graduates of 1909 Examined During 1909

Table B gives the results for the graduates of 1909 who were examined during the year by state boards and shows that 4,011 or 55 per cent. of all candidates examined during the year graduated in 1909. Educational statistics show that the medical colleges of the United States graduated 4,464 students last year; therefore, about 90 per cent. of all graduates in 1909 took examinations for license during the year. In some of the states graduates in medicine are allowed to serve their hospital internships without first becoming licensed practitioners, which doubtless accounts for some of the remaining 10 per cent. Of those examined 425 or 10.6 per cent. failed. An analysis of this table shows that of all the graduates of 1909 examined, 2,758, or 68.8 per cent., were examined in the states in which the colleges from which they graduated were located. This shows that states which sanction low-grade colleges are not only responsible for the ill-prepared output of such colleges, but are themselves the recipients of the greater portion of such output.

Recent Graduates Examined During 1909

Table C gives the results for graduates of 1905 to 1909 inclusive which were examined during 1909. It includes, therefore, the figures given in Table B. This table is particularly important, since it deals with recent graduates and is, therefore, the fairest basis for comparison between colleges. Any classification of medical colleges from the standpoint of failures at state board examinations should be based on this table. Of all candidates examined in 1909, 5,891 or 80.7 per cent. were recent graduates, and of this number 15.4 per cent. failed, as compared with 19.6 per cent. for all candidates.

Old Practitioners Examined in 1909

Table D is interesting because it shows the results for old practitioners or for those who graduated in 1904 or previously. Of the total number examined in 1909, 958 or 19.3 per cent. were of those who had graduated more than five years previously. This year, of those examined, 288 or 30 per cent. failed, as compared with 15.4 per cent. of failures for recent graduates. This high percentage of failures is probably due chiefly to the long time these candidates have been out of college and to the fact that they are required to take the same examination as recent graduates. Justice to these candidates, most of whom have already been licensed but who for probably good reasons desire to change their locations, is the strongest argument for interstate reciprocity in medical licensure, or for special percentage allowances at the examinations for years of practice. The total number of these candidates will naturally diminish each year as increased reciprocal relations are established, since, as a rule, the states which do not have reciprocal relations with other states (e. g., California, Florida, Washington) examine the largest numbers of old practitioners. A comparison with Table N will be of interest in this connection.

Undergraduates Examined During 1909

Line 138 of Table A shows the number of undergraduates examined in eight states during 1909. Omitting one report from Alabama, for which complete returns were not received, there were 438 non-graduates examined in 1909, of which number 237, or 54.1 per cent., failed. An unusually large number, 153, appeared for examination in Arkansas since it was the last year when non-graduates could appear for the license examination in that state. The same was true in Alabama although unfortunately the complete figures could not be obtained. North Carolina is required by an amendment to its practice act to register non-graduates, who are permitted to practice only in the sparsely settled mountain districts. The open door for these candidates still remains only in Massachusetts, Mississippi and Tennessee, and the percentages of failures in these states this year for non-graduates were respectively, 86.1, 60.0, and 5.0. The largest number registered was 76 in Tennessee.

Study of Totals and Percentages

A study of totals and percentages as compared with previous years is of interest. The totals of those examined show a decrease from last year and the percentage of failures for all candidates is the lowest since 1904.

TOTAL RESULTS
Comparison with Previous Years

Year.	Table A				C		D		A		M	
	Examined.	Total Examined—Passed.	Examined—Failed.	Percentage Failed.	Recent Grads. Examined.	Percentage Failed.	Older Grad. Examined.	Percentage Failed.	Non-Grads. Examined.	Percentage Failed.	Rejected Without Written Examination.	Total Registered.
1904	7035	5672	1363	19.3	4773	14.1	579	29.7	515	52.6	999	6971
1905	7170	5680	1490	20.8	6054	16.2	690	37.7	472	61.9	394	6074
1906	8035	6368	1667	20.7	6520	16.4	793	27.1	703	51.3	1497	7865
1907	7271	5723	1548	21.3	5922	15.1	675	27.7	674	69.6	1426	7149
1908	7770	6084	1686	21.7	6477	17.8	796	31.5	494	56.8	1276	7360
1909	7287	5856	1430	19.6	5891	15.4	958	30.0	438	54.1	1374	7290

Other deductions from the larger tables have been made and are presented in Tables E to N which are worthy of careful study.

STUDY OF COLLEGES BY STATE GROUPS

Table E is based on the first four large tables and gives data regarding the group of colleges located in each state. It shows what states are furnishing the largest numbers of physicians and the failure percentages indicate what kind of training

TABLE E.—COLLEGES GROUPED BY STATES
Showing Number Examined and Percentage of Failures

All Colleges of	Graduates. Of 1909. Examined.	Of 1909. Per Cent. Failed.	Of 1905 to 1909. Examined.	Of 1905 to 1909. Per Cent. Failed.	Of 1904 and Previous. Examined.	Of 1904 and Previous. Per Cent. Failed.	Of all years. Examined.	Of all years. Per Cent. Failed.	According to State Rank. Number Examined.	According to State Rank. Rank.	According to Success at Examinations. Rank.
Alabama	6	0.	16	6.3	6	0.	22	4.5	30		5
Arkansas	18	61.1	23	52.2	7	28.6	30	46.7	27		20
California	61	13.1	128	19.5	14	21.4	142	19.8	12		21
Colorado	23	4.4	41	3.5	5	40.0	46	6.5	36		7
Connecticut	9	11.1	26	3.8	2	0.	28	3.6	29		4
District of Columbia	41	12.2	128	21.9	13	23.1	141	22.0	13		22
Georgia	125	9.6	149	16.8	15	26.7	164	17.7	11		18
Illinois	594	9.4	779	13.5	125	32.0	904	16.0	1		16
Indiana	60	0.	60	0.	...	...	60	0.	21		1
Iowa	76	3.9	100	6.0	14	28.6	114	9.6	16		12
Kansas	33	3.0	58	15.1	6	16.7	59	15.3	22		14
Kentucky	176	11.2	262	17.2	30	33.3	292	18.9	7		19
Louisiana	93	7.5	104	7.7	17	11.8	121	8.3	15		9
Maine	19	0.	28	3.6	1	0.	29	3.4	28		3
Maryland	247	15.8	442	19.7	41	19.5	483	19.7	6		20
Massachusetts	100	14.0	190	15.3	36	16.7	226	15.5	9		15
Michigan	139	0.7	163	4.3	32	31.2	195	8.7	17		10
Minnesota	61	13.1	98	16.3	13	15.4	111	16.4	17		17
Mississippi	16	56.2	21	66.7	...	...	21	66.7	31		31
Missouri	417	17.3	527	24.3	48	47.9	575	26.3	3		26
Nebraska	46	0.	67	5.9	6	50.0	73	9.6	20		12
New Hampshire	6	0.	11	9.1	6	50.0	17	23.5	26		25
New York	306	3.6	504	4.2	43	21.0	547	5.5	5		6
North Carolina	63	14.3	89	22.5	...	...	89	22.5	18		23
Ohio	178	5.6	192	5.7	37	16.2	229	7.4	8		8
Oklahoma	2	0.	3	0.	...	...	3	0.	32		1
Oregon	22	21.8	53	26.4	4	75.0	57	29.8	23		27
Pennsylvania	448	3.4	591	5.1	67	19.3	658	6.5	2		7
South Carolina	36	30.6	40	35.0	6	33.3	46	34.8	26		29
Tennessee	311	21.5	472	30.1	79	40.5	551	31.6	4		28
Texas	66	1.5	71	1.4	3	33.3	74	2.7	19		2
Vermont	24	4.2	40	12.5	16	18.7	56	14.3	24		13
Virginia	96	4.2	122	8.9	3	33.3	126	9.5	14		11
Wisconsin	35	20.0	50	22.0	3	33.3	53	22.6	25		24
Totals Ex'd 1909	3947	10.3	5644	14.7	697	26.5	6341	16.2	..		..

This table gives data relating to the group of colleges in each state. For example, it shows that of all the medical schools in Illinois 904 graduates of various years were examined by state boards during 1909, of which number 16 per cent. failed; of the 779 who graduated in recent years (1905 to 1909, inclusive), 13.5 per cent. failed, and of the 125 who graduated previous to 1905, 32 per cent. failed.

The fifth column gives the rank of each state group of colleges according to the number of applicants. The Illinois group of colleges leads, having 904 graduates examined by state boards during 1909, followed by Pennsylvania with 658, Missouri with 575, Tennessee with 551, and New York with 547.

The sixth column gives the rank of each state group of colleges according to the success of the graduates at state board examinations. It is interesting to compare the figures of the last two columns. While the Illinois group ranks first according to the number examined, it ranks sixteenth in the success of its graduates at examinations. While the Missouri group ranks third in the number examined, it ranks as the twenty-sixth in the success of the graduates

these colleges are furnishing, so far as may be judged from the failures of their graduates before state boards. By comparing the percentages of the first column with the other columns it can be seen whether there has been any reduction in failures for graduates of recent years. Of the 34 states having complete medical colleges, 17 furnished 100 or more candidates examined. Of these 17 groups of colleges, 7 had failure percentages of less than 10 per cent.; 7 had failure percentages between 10 and 20, and 3 had over 20 per cent. of failures. The highest failure percentage was obtained by the Mississippi group. Of the states having 100 or more examined, however, the highest failure percentage was obtained by the Tennessee group, which had 31.0 followed by the Missouri group, with 26.3 per cent. Other deductions are given with the table.

STUDY OF LARGER COLLEGES

Table F is also based on the four large tables and gives the results of state board examinations as they affect the 44 largest medical colleges. Although these schools represent less than one-third of the medical schools in the United States they furnish nearly two-thirds of all the candidates for license. This table shows that the graduation of large classes by a medical college does not prove excellence of teaching since several colleges having 100 or more examined have very high failure percentages, which holds true even for the graduates of 1909. In fact, the larger the college from the standpoint of the number of students and graduates the more serious is inferior teaching ability, indicated by a high failure percentage. In fairness to the medical student, and in the interests of the public, such schools should greatly strengthen their teaching facilities or reduce the size of their classes.

RESULTS FOR LARGER COLLEGES
Comparison with Previous Years (Table F).

Year.	Colleges Represented.	Total Examined.	Per Cent. Failed.	Colleges, 100 or More Examined.	Total Examined.	Per Cent. Failed.	Colleges, 50 to 100 Examined.	Total Examined.	Per Cent. Failed.	Colleges, Less than 50 Examined.	Total Examined.	Per Cent. Failed.	Foreign and Undergrads. Examined.	Per Cent. Failed.
1904	149	6241	16.4	14	2271	11.7	28	1817	16.9	107	2153	21.0	794	43.1
1905	153	6411	18.3	14	2350	12.4	37	2543	17.7	102	1518	28.9	750	51.1
1906	146	6938	17.3	16	2504	14.5	34	2381	16.9	96	2043	21.3	1097	42.5
1907	146	6207	13.8	12	1626	12.7	36	2578	14.7	98	2003	13.6	1064	55.5
1908	137	6491	17.2	19	2595	15.6	26	1825	15.5	92	2070	20.8	1279	14.6
1909	149	6341	16.2	17	2476	16.9	27	1920	12.3	90	1945	19.2	946	42.6

Altogether for these schools 653 or 14.9 per cent. failed, as compared with 19.2 per cent. of failures for the 1,945 candidates from the 90 colleges having less than 50 each examined.

Besides the graduates of the medical colleges of the United States, 946 candidates were examined, made up of foreign college graduates, graduates of miscellaneous colleges and non-graduates, of which number 42.6 per cent. failed.

RESULTS IN HOME STATES AND ELSEWHERE

Table G is of much interest because it shows the results for each college of examinations in the state where the college is located as compared with the results of examinations in other states where there is no possibility of local influence. Of all recent graduates examined in 1909, 3,347 or about 60 per cent. took their license examinations in the state where the colleges from which they graduated were located. Of this number only 10.6 per cent. failed on the average, whereas, of the 2,297 candidates examined in other states, 20.8 per cent. failed. This would indicate that as a rule the students' chances of passing the license examinations are better if he stays in the college's home state. In this connection it is interesting to note that not a single graduate of any one of the Tennessee colleges failed in the Tennessee examinations although of the graduates of these colleges who were examined in other states the failures varied from 18.5 per cent. to 77.7 per cent. or an average of 45.2. The chances for success at home and elsewhere were equal or nearly so in 6 instances while the graduates' chances were better in other than the home state in 12 instances.

TOTAL RESULTS FOR FIVE YEARS

Table H shows, so far as reports were obtainable, the number registered and the number rejected in each state for each of the past five years. A comparison of this table with the statistics in the last educational number of THE JOURNAL (Aug. 14, 1909, p. 546), shows what would be expected, that the states having the largest number of medical graduates examine the largest numbers of physicians. In 1905 several states registered all or the majority of their applicants on the presentation of satisfactory credentials without written examinations. Now only one state, New Mexico, will register candidates on presentation of a diploma, without examination. This table shows only those registered by examination. Another table (M) shows the total registration by all methods.

CLASSIFICATION OF COLLEGES

Tables, I, J, K and L give a classification of the medical colleges of the United States on the basis of the failures of their graduates at state board examinations during the past year. This classification is based on the examination of *recent graduates* as shown in Table C. In forming conclusions, the caution already given should be observed, of noting the number examined, the number of states in which representatives appeared and the character of the boards making the examination. To form a more exact judgment one should compare the percentage of failures received by any college this year with those received in the classifications published in previous years. Careful investigation shows that a college cannot be considered a high-grade medical school merely because its graduates occasionally show a low percentage of failures at state board examinations. The fact is that several poorly equipped and low-standard colleges appear in the first list. On the other hand, some good schools appear in the second list. For the majority of colleges, however, the classification is fairly accurate.

Table I gives a list of 58 colleges which obtained failure percentages below 10 per cent., 21 of which had no failures whatsoever and 40 had only 5 per cent. or less. The failure percentage for the entire group was 4.3. Table J shows 31 colleges whose failure percentages were between 10 and 20 per cent., of which number 19 had percentages below that for the group, which was 14.4. Table K includes 38 colleges having failure percentages of 20 per cent. and above, of which number 25 had above 30 per cent., 12 had above 40 per cent., and 6 had percentages of 50 per cent. or higher. The average percentage for all candidates from this group of colleges was 35.5.

TABLE F.—COLLEGES HAVING 50 OR MORE EXAMINED

TABLE SHOWS TOTAL NUMBER EXAMINED, PERCENTAGE OF FAILURES AND NUMBER OF STATES IN WHICH EACH COLLEGE HAD REPRESENTATIVES

College.	Graduates, All Years.			Graduates of 1905-1909.			Graduates of 1904 and previous.			Graduates of 1909.			Margin Number.
	No. Examined.	Per Cent. Failed.	No. States.	No. Examined.	Per Cent. Failed.	No. States.	No. Examined.	Per Cent. Failed.	No. States.	No. Examined.	Per Cent. Failed.	No. States.	
University of Louisville, Medical Department	288	19.1	33	260	17.3	32	28	35.7	14	168	11.3	18	45
Northwestern University Medical School	229	6.6	23	203	5.4	21	26	15.4	13	160	3.1	18	34
Jefferson Medical School	202	7.9	39	173	4.6	33	29	27.6	15	123	4.9	23	108
College of Physicians and Surgeons	170	14.7	25	141	11.3	22	29	31.0	14	114	8.8	13	23
University of Pennsylvania, Department of Medicine	155	1.9	25	138	0.7	22	17	11.8	13	101	1.0	11	111
Rush Medical College	142	7.0	21	105	1.0	17	37	24.3	15	74	0.	9	36
Meharry Medical College	136	50.0	18	129	49.5	17	7	57.1	6	69	37.7	12	119
Memphis Hospital Medical College	133	27.8	10	108	27.8	10	25	28.0	7	59	23.6	8	118
Baltimore Medical College	127	30.7	22	124	29.8	21	3	66.7	3	52	19.2	11	50
University of Michigan, Department of Medicine and Surgery	119	8.4	20	92	1.1	17	27	33.3	14	79	1.3	12	62
Barnes Medical College	117	35.0	17	103	33.0	14	14	50.0	6	80	22.5	9	68
Columbia University, College of Physicians and Surgeons	113	4.4	19	103	3.9	18	10	10.0	6	46	2.2	8	82
Tulane University of Louisiana, Medical Department	112	4.5	18	97	4.1	13	15	6.7	9	86	3.4	10	47
St. Louis College of Physicians and Surgeons	112	44.6	17	103	43.6	14	11	54.5	8	75	32.0	8	73
University of Maryland, School of Medicine	111	9.9	20	101	8.9	18	10	20.0	8	76	10.5	13	54
Chicago College of Medicine and Surgery	110	15.5	17	107	13.1	15	3	100.0	3	97	8.2	10	26
Long Island College Hospital	100	11.0	6	96	9.4	4	4	50.0	4	47	10.6	2	86
Medico-Chirurgical College of Philadelphia	98	5.1	14	89	2.2	11	9	33.3	3	77	2.6	8	109
University and Bellevue Hospital Medical College	97	3.1	15	86	1.2	8	11	18.1	8	53	0.	3	90
Tufts College Medical School	90	13.3	10	83	13.3	8	7	14.3	5	46	13.0	3	59
St. Louis University School of Medicine	89	10.1	12	88	10.2	12	1	0.	1	67	3.0	6	71
Washington University Medical Department	87	8.0	9	82	6.1	7	5	40.0	3	74	5.4	4	76
University Medical College, Kansas City	86	22.1	15	76	19.7	11	10	40.0	5	53	15.5	5	74
University of Nashville, Medical Department	83	22.9	19	70	17.1	17	13	53.8	10	47	10.6	13	121
State University of Iowa, College of Medicine	81	7.3	10	70	4.3	8	11	27.3	5	51	2.0	4	39
Maryland Medical College	78	38.5	19	69	39.1	16	9	33.3	6	39	35.9	6	53
Western Pennsylvania Medical College	77	9.1	7	74	9.5	5	3	0.	3	56	5.4	3	113
Hahnemann Medical College and Hospital, Philadelphia	75	13.3	17	70	14.3	15	5	0.	5	53	5.7	9	107
University of Minnesota, College of Medicine and Surgery	74	8.1	10	67	8.9	8	7	0.	5	46	6.5	4	64
Harvard Medical School	73	4.1	12	59	3.4	10	14	7.2	5	27	3.7	4	58
Cornell University Medical College	71	0.	9	66	0.	7	5	0.	3	46	0.	6	83
Atlanta School of Medicine	68	8.8	4	68	8.8	4	..	....	..	62	9.7	3	20
College of Physicians and Surgeons, Baltimore	68	8.8	18	58	10.3	16	10	0.	7	32	6.2	10	51
Johns Hopkins University, Medical Department	65	1.5	20	58	1.7	20	7	0.	5	27	3.7	12	53
George Washington University, Department of Medicine	62	16.1	22	57	17.5	20	5	0.	5	17	5.9	4	18
Starling-Ohio Medical College	62	8.1	9	53	7.5	4	9	11.1	5	51	5.9	2	101
Indiana University School of Medicine	60	0.	4	60	0.	4	..	....	..	50	0.	3	37
Bennett Medical College	56	28.6	16	48	25.0	10	8	50.0	7	42	26.2	6	25
University of Vermont, College of Medicine	56	14.3	14	40	12.5	9	16	18.7	12	24	4.2	6	125
University College of Medicine, Richmond	55	7.3	7	54	7.4	6	1	0.	1	48	4.2	5	132
Howard University, Medical Department	54	33.3	15	48	31.2	13	6	50.0	4	16	18.7	7	18
Hahnemann Medical College and Hospital, Chicago	53	26.4	15	41	22.0	13	12	41.7	6	21	23.8	6	29
Atlanta College of Physicians and Surgeons	51	13.7	11	43	10.4	5	8	25.0	8	40	10.0	4	19
Creighton Medical College	51	7.8	14	46	2.2	12	5	60.0	3	29	0.	5	77
Totals	4396	14.9	16	3904	13.3	13	492	27.0	7	2744	9.4	8	

This table is especially interesting, since it gives data relating to the 44 larger medical colleges arranged according to the number of graduates examined. This allows of comparisons between colleges having classes of nearly equal size. This time the University of Louisville Medical Department had the largest number examined, which place was held in 1908 by Jefferson Medical College and in the three previous years by the College of Physicians and Surgeons of Chicago.

Of the 17 colleges having 100 or more examined, only 8 have failure percentages of less than 10, while 5 stand out prominently with large failure percentages of 27.8, 30.7, 35.0, 44.6 and 50.0. This marked difference holds even in respect to recent graduates (of 1905 to 1909, inclusive).

Of the 27 colleges having between 50 and 100 graduates examined, 15 had failure percentages less than 10; 6 had failure percentages between 10 and 20 and 6 had failure percentages above 20, the 3 highest having 28.6, 33.3 and 38.5 per cent.

The average percentage of failures for these larger colleges for graduates of 1904 and previous years, was 27.0; for graduates of 1905 to 1909 inclusive (recent graduates), 13.3; for graduates of 1909, 9.4 and for graduates of all years, 14.9. Of the 44 colleges, 29 obtained failure percentages below the average. Of the 6,849 college graduates examined by state boards in 1909, these larger schools furnished 4,396, or 64.2 per cent.

TABLE G—COMPARISON OF RESULTS IN HOME STATES AND ELSEWHERE. BASED ON TABLE C.

College	Total Examined.	Results in Home State. Passed.	Failed.	Per Cent. Failed.	Results in Other States. Passed.	Failed.	Per Cent. Failed.
ALABAMA	16	...	...	...	15	1	6.3
Birmingham Medical College	6	...	...	...	5	1	16.7
University of Alabama	10	...	...	...	10	0	0.
ARKANSAS + 7.8	23	4	7	63.6	7	5	71.4
Coll. of Physicians and Surgeons	7	1	2	66.7	2	2	50.0
University of Arkansas	16	3	5	62.5	5	3	37.5
CALIFORNIA 5.4	128	86	22	20.4	17	3	15.0
California Eclectic Medical College	2	1	1	50.0	...	...	...
College of Phys. and Surgs., Los Angeles	9	4	2	33.3	3	0	0.
Coll. of Phys. and Surgs., San Francisco	23	13	6	30.0	5	1	16.7
Cooper Medical College	29	24	2	7.7	3	0	0.
Hahnemann Medical College	13	7	5	41.7	1	0	0.
Oakland College of Medicine and Surgery	3	3	0	0.	...	...	...
University of California	14	9	0	0.	3	2	40.0
University of Southern California	33	25	6	19.4	2	0	0.
COLORADO 4.2	41	23	1	4.2	17	0	0.
Denver and Gross College of Medicine	31	18	1	5.3	12	0	0.
University of Colorado	10	5	0	0.	5	0	0.
CONNECTICUT 11.1	26	8	1	11.1	17	0	0.
Yale Medical School	26	8	1	11.1	17	0	0.
DISTRICT OF COLUMBIA 20.2	128	30	16	34.8	70	12	14.6
George Washington University	57	20	9	31.0	27	1	3.6
Georgetown University	23	2	3	33.3	18	0	0.
Howard University	48	8	6	42.8	25	9	26.5
GEORGIA +17.4	149	92	12	11.5	32	13	28.9
Atlanta College of Phys. and Surg	43	30	4	11.8	8	1	11.1
Atlanta School of Medicine	68	43	5	10.4	19	1	5.0
Georgia Coll. of Eclectic Med. and Surg	3	...	...	...	1	1	100.0
Medical College of Georgia	37	19	3	13.6	5	10	66.7
ILLINOIS 5.7	779	475	63	11.7	199	42	17.4
American Medical Missionary College	10	...	...	...	10	0	0.
Bennett Medical College	37	28	9	35.7	7	3	30.0
Chicago College of Medicine and Surg	107	81	7	8.0	12	7	36.8
Coll. of Med. and Surg., Physio-Medical	9	4	5	55.6	...	...	...
College of Phys. and Surg., Chicago	141	91	6	6.2	34	10	22.7
Hahnemann Medical College and Hosp	41	16	5	23.8	16	4	20.0
Hering Medical College	7	6	0	0.	1	0	0.
Illinois Medical College	40	22	7	24.1	7	4	36.3
Jenner Medical College	29	17	10	37.0	0	2	100.0
National Medical University	13	8	6	42.8	3	2	40.0
Northwestern University Medical School	203	121	2	1.6	71	9	11.2
Reliance Medical College	20	14	6	30.0	...	...	...
Rush Medical College	105	66	0	0.	38	1	2.6
INDIANA	60	55	0	0.	5	0	0.
Indiana University	60	55	0	0.	5	0	0.
IOWA + 0.3	100	64	4	5.9	30	2	6.2
Drake University	22	18	2	10.0	1	1	50.0
University of Iowa (R)	70	43	2	4.4	24	1	4.0
University of Iowa (H)	8	3	0	0.	5	0	0.
KANSAS +21.1	53	29	1	3.3	16	7	30.4
Kansas Medical College	25	20	1	4.8	2	2	50.0
University of Kansas	28	9	0	0.	14	5	26.3
KENTUCKY + 6.4	262	91	14	13.3	126	31	19.7
Louisville National Medical College	1	...	...	...	1	0	0.
Southern Homeopathic Medical College	1	1	0	0.	...	...	...
University of Louisville	260	90	14	13.5	125	31	19.9
LOUISIANA + 6.4	104	57	3	5.0	39	5	11.4
Flint Medical College	7	2	2	50.0	1	2	66.7
Tulane University of Louisiana	97	55	1	1.8	38	3	7.3
MAINE 5.3	28	18	1	5.3	9	0	0.
Medical School of Maine	28	18	1	5.3	9	0	0.
MARYLAND 2.6	442	91	25	21.6	264	62	19.0
Atlantic Medical College	23	...	...	...	19	4	17.4
Baltimore Medical College	124	13	7	35.0	74	30	28.8
College of Phys. and Surg., Baltimore	58	13	0	0.	39	6	13.3
Johns Hopkins University	58	15	0	0.	42	1	2.3
Maryland Medical College	69	8	11	57.9	34	16	32.0
University of Maryland	101	40	4	9.1	52	5	8.8
Woman's Medical College	9	2	3	60.0	4	0	0.
MASSACHUSETTS 2.9	190	109	21	16.2	52	8	13.3
Boston University	23	14	3	17.7	5	1	12.5
College of Phys. and Surg., Boston	25	4	11	73.3	7	3	30.0
Harvard Medical School	59	38	1	2.6	19	1	5.0
Tufts College Medical School	83	53	8	13.1	19	3	13.6
MICHIGAN +12.8	163	118	7	5.8	38	6	13.6
Detroit College of Medicine	43	36	0	0.	4	3	42.9
Detroit Homeopathic College	6	5	0	0.	0	1	100.0
University of Michigan (R)	92	62	0	0.	29	1	3.3
University of Michigan (H)	22	15	1	6.3	5	1	16.7
MINNESOTA 2.8	98	58	12	17.1	24	4	14.3
University of Minnesota (R)	67	46	3	6.1	15	3	16.7
Hamline University	31	12	9	42.9	9	1	10.0
MISSISSIPPI —73.7	21	5	14	73.7	2	0	0.
Mississippi Medical College	21	5	14	73.7	2	0	0.
MISSOURI + 3.2	527	170	49	22.4	229	78	25.6
American Medical College	4	3	0	0.	1	0	0.
Barnes Medical College	103	31	14	31.1	38	20	34.5
Ensworth Medical College	42	7	3	30.0	21	11	34.4
Kansas City Hahnemann Medical Coll	20	1	2	66.7	13	4	23.5
St. Louis University	88	40	1	2.4	39	8	17.0
St. Louis College of Phys. and Surg	101	16	14	46.7	41	30	42.3
University of Missouri	6	3	0	0.	3	0	0.
University Medical College, Kansas City	76	26	12	31.6	35	3	7.9
Western Eclectic Coll. of Med. and Surg	5	...	...	...	4	1	20.0
Washington University	82	43	3	6.5	34	2	5.6
NEBRASKA +10.7	67	43	1	2.3	20	3	13.0
Creighton Medical College	46	26	1	3.7	19	0	0.
Lincoln Medical College	11	8	0	0.	...	3	100.0
University of Nebraska	10	9	0	0.	1	0	0.
NEW HAMPSHIRE —16.7	11	5	1	16.7	5	0	0.
Dartmouth Medical School	11	5	1	16.7	5	0	0.
NEW YORK + 0.4	536	420	18	4.1	63	3	4.5
Albany Medical College	37	31	3	8.8	3	0	0.
Columbia University, Coll. of P. and S	103	78	2	2.5	21	2	8.7
Cornell University Medical College	66	55	0	0.	11	0	0.
Eclectic Medical College, New York	12	10	1	9.1	1	0	0.
Fordham University, School of Medicine	10	10	0	0.	...	...	...
Long Island College Hospital	96	82	9	9.9	5	0	0.
New York Homeo. Med. Coll. and Hosp.	20	11	1	8.3	7	1	12.5
N. Y. Med. Coll. and Hosp. for Women	4	4	0	0.	...	...	...
Syracuse University	39	33	3	8.9	3	0	0.
University and Bellevue Hosp. Med. Coll.	86	77	1	1.3	8	0	0.
University of Buffalo	31	29	0	0.	2	0	0.
NORTH CAROLINA +22.7	89	36	4	10.0	33	16	32.7
Leonard School of Medicine	47	10	3	23.1	21	13	38.2
North Carolina Medical College	25	14	0	0.	9	2	18.1
University of North Carolina	17	12	1	7.7	3	1	25.0
OHIO + 0.4	192	150	9	5.7	31	2	6.1
Cleveland College of Phys. and Surg	19	16	0	0.	3	0	0.
Cleveland Homeopathic Medical College	10	7	0	0.	3	0	0.
Eclectic Medical College	14	4	1	20.0	8	1	11.1
Medical College of Ohio	32	28	0	0.	4	0	0.
Miami Medical College	22	14	4	22.2	4	0	0.
Pulte Medical College	6	4	0	0.	2	0	0.
Starling-Ohio Medical College	53	47	3	6.0	2	1	33.3
Toledo Medical College	6	5	1	16.7	...	...	...
Western Reserve University	30	25	0	0.	5	0	0.
OKLAHOMA	3	3	0	0.	...	...	...
Epworth College of Medicine	3	3	0	0.	...	...	...
OREGON —24.8	53	27	13	32.5	12	1	7.7
Willamette University	26	11	7	38.9	8	0	0.
University of Oregon	27	16	6	27.3	4	1	20.0
PENNSYLVANIA + 5.3	591	351	11	3.0	210	19	8.3
Hahnemann Medical College and Hosp	70	39	2	4.9	21	8	26.7
Jefferson Medical College	173	80	1	1.2	85	7	7.6
Medico-Chirurgical Coll. of Philadelphia	89	68	1	1.4	19	1	5.0
Temple University, Medical Department	22	19	1	5.0	2	0	0.
University of Pennsylvania	138	73	0	0.	64	1	1.5
Western Pennsylvania Medical College	74	57	6	9.5	10	1	9.1
Woman's Med. College of Pennsylvania	25	15	0	0.	9	1	10.0
SOUTH CAROLINA —1.8	40	24	13	35.1	2	1	33.3
Medical College of South Carolina	40	24	13	35.1	2	1	33.3
TENNESSEE +45.2	472	158	0	0.	172	142	45.2
Chattanooga Medical College	33	19	0	0.	5	9	64.3
College of Phys. and Surg., Memphis	11	5	0	0.	3	3	50.0
Knoxville Medical College	15	6	0	0.	2	7	77.7
Memphis Hospital Medical College	108	28	0	0.	50	30	37.5
Meharry Medical College	129	28	0	0.	37	64	63.4
Tennessee Medical College	22	17	0	0.	2	3	60.0
University of Nashville	70	26	0	0.	22	12	27.3
University of Tennessee	31	9	0	0.	18	4	18.2
University of West Tennessee	12	6	0	0.	1	5	83.3
Vanderbilt University	41	14	0	0.	22	5	18.5
TEXAS —1.4	71	68	1	1.4	2	0	0.
Baylor University	13	13	0	0.	...	...	...
Fort Worth University	12	12	0	0.	...	...	...
Southwestern University	9	8	1	11.1	...	...	...
University of Texas	37	35	0	0.	2	0	0.
VERMONT +23.8	40	19	0	0.	16	5	23.8
University of Vermont	40	19	0	0.	16	5	23.8
VIRGINIA + 2.3	123	78	7	8.2	34	4	10.5
Medical College of Virginia	43	31	3	8.8	8	0	0.
University of Virginia	27	13	3	18.7	10	1	9.1
University College of Medicine	54	34	1	2.9	16	3	15.8
WISCONSIN —9.3	50	27	10	27.0	12	1	7.7
Marquette University	30	14	9	39.1	6	1	14.3
Wisconsin College of Phys. and Surg	20	13	1	7.2	6	0	0.
Totals +10.2	5644	2992	355	10.6	1620	477	20.8

In this table the number of graduates examined in the state in which the college is located are grouped in one column, while graduates of that college examined in other states are in another column. This shows frequently that the graduates of certain schools have a better chance of passing the examination in the state in which they are located than they have elsewhere. This should always be considered in making comparisons between colleges. A college having an exceedingly low standard, by having all its graduates examined in the home state, may thus show a lower percentage of failures than a college of much higher grade which has graduates examined by several states.

The heavy-faced figures give the results by states. The first column of heavy-faced figures shows the differerences between the percentages of examinations in the home state and the examinations elsewhere. The plus sign indicates that graduates have better chances of success in the state where the college is located; the minus sign indicates that the chances are better elsewhere. The most marked variation this year is seen in the results for the Tennessee colleges.

In Table L have been placed a number of colleges in regard to which data were insufficient to allow of fair comparison.

A comparison of the classification this year with those of previous years shows an increase in the number of colleges having less than 10 per cent. of failures and a decrease in those having above 20 per cent.

CLASSIFICATION OF COLLEGES

Comparison with Previous Years (Tables I, J, K, L)

	Colleges Having Less than 10 Per Cent.	Colleges Having 10 to 20 Per Cent.	Colleges Having Above 20 Per Cent.	Unclassified Colleges.	Total Colleges.
1904	47	27	38	37	149
1905	45	23	40	46	153
1906	62	24	43	20	149
1907	64	27	39	18	148
1908	48	29	46	15	138
1909	58	31	38	7	134

TABLE H.—PHYSICIANS EXAMINED BY STATE BOARDS, 1905 TO 1909, INCLUSIVE

State.	1905		1906		1907		1908		1909				
	Registered.	Rejected.	Registered.	Rejected.	Registered.	Rejected.	Registered.	Rejected.	Registered.	Rejected.	Total Examined.	Rejected.	Percentage Rejected.
Alabama*	131	22	138	22	142	38	66	6	7	20	652	484	168	25.8
Arizona	35	7	35	4	29	2	36	4	19	6	177	154	23	13.0
Arkansas*	88	58	152	73	72	106	120	85	111	131	996	543	453	45.5
California	144	127	190	44	118	84	145	96	184	73	1,205	781	424	35.2
Colorado	283	54	....	....	50	6	52	14	36	15	510	421	89	17.5
Connecticut	60	17	84	28	64	17	67	19	32	13	424	333	91	21.4
Delaware	20	8	11	1	4	2	11	0	19	22	78	65	13	16.7
Dist. of Columbia	67	23	63	34	59	37	53	36	46	21	439	288	151	34.4
Florida	24	3	66	7	72	8	79	10	70	12	351	311	40	11.4
Georgia	....	....	164	51	39	22	150	14	142	28	665	596	69	10.4
Idaho	46	15	42	12	38	7	52	16	54	23	305	222	73	23.9
Illinois	759	36	748	69	580	52	646	96	645	117	3,748	3,378	370	9.9
Indiana	249	63	228	12	172	17	172	7	102	3	1,025	923	102	10.0
Iowa	265	30	196	29	146	26	139	43	98	14	896	754	142	15.7
Kansas	163	29	180	27	125	14	116	18	121	20	813	705	108	13.3
Kentucky	38	4	52	13	48	19	107	61	120	18	480	365	115	24.0
Louisiana	105	15	133	14	153	7	145	29	121	33	755	657	98	13.0
Maine	68	3	80	8	74	4	92	11	55	10	405	369	36	8.9
Maryland	139	75	112	44	139	41	132	71	130	32	897	633	264	29.4
Massachusetts	274	63	270	120	226	118	238	108	213	95	1,725	1,221	504	29.2
Michigan	82	5	162	6	150	8	113	6	140	2	674	647	27	4.0
Minnesota	124	39	104	31	80	35	76	25	90	25	629	474	155	24.3
Mississippi*	113	138	156	144	157	191	138	184	130	154	1,503	694	821	53.9
Missouri	....	....	249	193	186	86	181	50	212	70	1,227	838	389	32.5
Montana	31	17	24	25	34	14	51	27	68	23	314	208	106	33.7
Nebraska	87	29	58	25	68	14	103	16	74	8	482	390	92	19.1
Nevada	....	2	....	0	10	1	17	0	9	1	38	36	2	5.3
New Hampshire	15	5	34	17	19	11	37	16	20	10	184	135	50	27.1
New Jersey	55	17	80	13	73	15	89	17	76	12	447	373	74	16.5
New Mexico	....	....	....	....	5	3	20	2	11	4	55	46	9	16.4
New York	705	51	629	56	691	54	679	73	566	72	3,576	3,270	306	8.6
North Carolina	92	40	87	41	111	20	95	28	111	18	641	496	145	22.6
North Dakota	72	7	60	10	49	4	52	10	41	6	311	274	37	11.9
Ohio	213	8	222	16	179	9	182	6	192	13	1,040	988	52	5.0
Oklahoma	53	28	95	28	....	....	34	10	92	44	384	274	110	28.6
Oregon	68	66	63	66	62	56	43	63	95	50	624	333	291	46.7
Pennsylvania	540	98	519	73	465	54	485	49	474	27	2,784	2,483	301	10.8
Rhode Island	47	19	54	30	36	23	29	17	23	10	288	189	99	34.4
South Carolina	44	22	39	13	41	17	47	21	46	33	323	217	106	32.8
South Dakota	41	11	26	11	23	5	38	6	60	21	262	168	54	20.6
Tennessee*	86	35	150	96	133	140	213	87	277	4	1,221	859	362	29.6
Texas	117	73	159	53	187	64	143	23	181	19	1,019	787	232	22.8
Utah	32	8	37	7	26	9	27	5	28	4	174	150	24	13.8
Vermont	43	1	33	0	40	7	45	6	38	2	217	201	16	7.4
Virginia	62	50	123	35	124	33	128	53	106	40	862	651	211	24.5
Washington	141	34	137	45	163	38	182	60	148	49	997	771	226	22.7
West Virginia	109	95	84	72	92	9	102	18	105	10	696	492	204	29.3
Wisconsin	95	5	52	2	62	3	80	7	56	13	377	345	32	8.5
Wyoming	12	1	12	3	7	3	7	2	12	0	61	50	11	18.0
Totals	7,596		8,035		7,271		7,770		7,287		37,959			
Registered	6,042		6,398		5,723		6,084		5,857		30,074			
Rejected	1,554		1,667		1,548		1,686		1,430			7,885		
Percent. Rej.	20.5		20.7		21.3		21.7		19.6					20.8

This table gives the number of candidates registered by examination by each state during each of the last five years, as well as the number rejected. The last four columns give the totals for the five years and the percentage rejected by each state. One 1909 report for Alabama was incomplete, so the figures could not be included.

Four states registered over 1,000 candidates by examination, these being Illinois, Massachusetts, New York and Pennsylvania. Over 3,000 were registered in Illinois and New York.

The highest percentage of rejections was 53.9 in Mississippi, followed by Oregon, Arkansas and California, with 46.7, 45.5 and 35.2, respectively. The states marked with an asterisk (*) indicate non-graduates among those examined, and for that reason would be expected to have higher percentages rejected.

The lowest failure percentages were in Nevada, 2.6; Michigan, 4.0; Ohio, 5.0; Vermont, 7.4 and Wisconsin, 6.9.

TABLE I.*—COLLEGES HAVING LESS THAN 10 PER CENT. OF FAILURES BEFORE STATE BOARDS IN 1909. BASED ON TABLE C.

College	Total Examined.	Number Passed.	Number Failed.	Per Cent. Failed.	No. of States.
ALABAMA					
University of Alabama, Medical Department	10	10	0	0.	4
CALIFORNIA					
Cooper Medical College	29	27	2	6.9	2
Oakland College of Medicine and Surgery	3	3	0	0.	1
COLORADO					
Denver and Gross College of Medicine	31	30	1	3.2	9
University of Colorado, School of Medicine	10	10	0	0.	4
CONNECTICUT					
Yale Medical School	26	25	1	3.8	7
GEORGIA					
Atlanta School of Medicine	68	62	6	8.8	4
ILLINOIS					
American Medical Missionary College	10	10	0	0.	4
Hering Medical College	7	7	0	0.	2
Northwestern University Medical School	203	192	11	5.4	21
Rush Medical College	105	104	1	1.0	17
INDIANA					
Indiana University, School of Medicine	60	60	0	0.	4
IOWA					
State University of Iowa, College of Med.	70	67	3	4.3	8
State University of Iowa, Homeo. Dept.	8	8	0	0.	5
LOUISIANA					
Tulane University, Medical Department	97	93	4	4.1	13
MAINE					
Medical School of Maine	28	27	1	3.6	3
MARYLAND					
Johns Hopkins University, Medical Dept.	58	57	1	1.7	20
University of Maryland, School of Med.	101	92	9	8.9	18
MASSACHUSETTS					
Boston University, School of Medicine	23	21	2	8.7	8
Harvard Medical School	59	57	2	3.4	10
MICHIGAN					
Detroit College of Medicine	43	40	3	7.0	5
Univ. of Michigan, Dept. of Med. and Surg.	92	91	1	1.1	17
University of Michigan, Homeopathic Dept.	22	20	2	9.1	5
MINNESOTA					
Univ. of Minnesota, Coll. of Med. and Surg.	67	61	6	8.9	8
MISSOURI					
American Medical College	4	4	0	0.	2
University of Missouri, Medical Department	6	6	0	0.	4
Washington University, Medical Department	82	77	5	6.1	7
NEBRASKA					
John A. Creighton Medical College	46	45	1	2.2	12
University of Nebraska, College of Medicine	10	10	0	0.	2
NEW HAMPSHIRE					
Dartmouth Medical School	11	10	1	9.1	5
NEW YORK					
Albany Medical College	37	34	3	8.1	4
Columbia Univ., Coll. of Phys. and Surg.	103	99	4	3.9	18
Cornell University Medical College	66	66	0	0.	7
Eclectic Medical College of New York	12	11	1	8.3	2
Fordham University School of Medicine	10	10	0	0.	1
Long Island College Hospital	96	87	9	9.4	4
Syracuse University, College of Medicine	39	38	1	2.6	6
University and Bellevue Hospital Med. Coll.	86	85	1	1.2	8
University of Buffalo, Medical Department	31	31	0	0.	2
NORTH CAROLINA					
North Carolina Medical College	25	23	2	8.0	6
OHIO					
Cleveland College of Phys. and Surg.	19	19	0	0.	4
Cleveland Homeopathic Medical College	10	10	0	0.	4
Medical College of Ohio	32	32	0	0.	4
Pulte Medical College	6	6	0	0.	2
Starling-Ohio Medical College	53	49	4	7.5	4
Western Reserve University, Medical Dept.	30	30	0	0.	3
PENNSYLVANIA					
Jefferson Medical College	173	165	8	4.6	33
Medico-Chirurgical College of Philadelphia	89	87	2	2.2	11
Temple University, Medical Department	22	21	1	4.5	3
University of Pennsylvania, Dept. of Med.	138	137	1	0.7	22
Western Pennsylvania Medical College	74	67	7	9.5	5
Woman's Medical College of Pennsylvania	25	24	1	4.0	9
TEXAS					
Baylor University, College of Medicine	13	13	0	0.	1
Fort Worth University, Medical Department	12	12	0	0.	1
University of Texas, Department of Med.	37	37	0	0.	2
VIRGINIA					
Medical College of Virginia	42	39	3	7.1	5
University College of Medicine	54	50	4	7.4	6
WISCONSIN					
Wisconsin College of Physicians and Surg.	20	19	1	5.0	5
Totals	2743	2627	116	4.3	

* See remarks in the text regarding this classification of colleges.

TOTAL REGISTRATION IN 1909

The tables thus far described have referred to candidates registered by examination only. Table M, however, shows the totale number registered in each state, including those registered by examination, by reciprocity, and under various exemption clauses. Above 100 were registered in 28 different states, above 200 in 9 and above 400 in 3, the largest numbers being registered in Illinois with 686, in New York with 616 and in Pennsylvania with 474 and in Tennessee with 311. Nongraduates were registered in eight states, the largest numbers being 76 in Tennessee, 57 in Mississippi and 52 in Arkansas. Altogether 7,230 candidates were licensed during 1909.

TABLE J.—COLLEGES HAVING BETWEEN 10 AND 20 PER CENT. OF FAILURES BEFORE STATE BOARDS IN 1909 BASED ON TABLE C.

College	Total Examined.	Number Passed.	Number Failed.	Per Cent. Failed.	No. of States.
ALABAMA					
Birmingham Medical College	6	5	1	16.7	5
CALIFORNIA					
University of California, Medical Dept.	14	12	2	14.3	5
Univ. of Southern California, Coll. of Med.	33	27	6	18.2	3
DISTRICT OF COLUMBIA					
George Washington University	57	47	10	17.5	20
Georgetown University, School of Medicine	23	20	3	13.0	11
GEORGIA					
Atlanta College of Physicians and Surg.	43	38	5	10.4	5
ILLINOIS					
Chicago College of Medicine and Surgery	107	93	14	13.1	15
College of Physicians and Surgeons	141	125	16	11.3	22
IOWA					
Drake University, College of Medicine	22	19	3	13.6	3
KANSAS					
Kansas Medical College	25	22	3	12.0	4
University of Kansas, School of Medicine	28	23	5	17.9	6
KENTUCKY					
University of Louisville Medical Department	260	215	45	17.3	32
MARYLAND					
Atlantic Medical College	23	19	4	17.4	6
College of Physicians and Surgeons	58	52	6	10.3	16
MASSACHUSETTS					
Tufts College Medical School	83	72	11	13.3	8
MICHIGAN					
Detroit Homeopathic College	6	5	1	16.7	2
MISSOURI					
St. Louis University, School of Medicine	88	79	9	10.2	12
University Medical College	76	61	15	19.7	11
NEW YORK					
New York Homeo. Med. Coll. and Hosp.	20	18	2	10.0	5
NORTH CAROLINA					
University of North Carolina, Med. Dept.	17	15	2	11.8	4
OHIO					
Eclectic Medical Institute	14	12	2	14.3	5
Miami Medical College	22	18	4	18.2	3
Toledo Medical College	6	5	1	16.7	1
PENNSYLVANIA					
Hahnemann Medical College	70	60	10	14.3	15
TENNESSEE					
Tennessee Medical College	22	19	3	13.6	5
University of Nashville, Medical Department	70	58	12	17.1	17
University of Tennessee, Dept. of Medicine	31	27	4	12.9	9
Vanderbilt University, Medical Department	41	36	5	12.2	14
TEXAS					
Southwestern University, Medical College	9	8	1	11.1	1
VERMONT					
University of Vermont, College of Med.	40	35	5	12.5	9
VIRGINIA					
University of Virginia, Dept. of Medicine	27	23	4	14.8	9
Totals	1482	1268	214	14.4	

TABLE L.—UNCLASSIFIED COLLEGES

College	Total Examined.	Number Passed.	Number Failed.	Per Cent. Failed.	No. of States.
California Eclectic Medical College	2	1	1	50.0	1
Georgia College of Eclectic Med. and Surg.	1	0	1	100.0	1
Hospital Medical College, Eclectic, Atlanta	..	..	...	.....	...
Louisville National Medical College	1	1	0	0.	1
Southwestern Homeopathic Medical College	1	1	0	0.	1
New York Med. Coll. and Hosp. for Women	4	4	0	0.	1
Epworth College of Medicine	3	3	0	0.	1
Totals	12	10	2	16.7	

Table N gives those registered without examination on presentation of satisfactory credentials, which included a license issued by some other state. This is usually described by the term "reciprocity," which conveys the idea that the state which accepts the license of another must be granted the same courtesy by the state issuing the original license. The term does not well describe this method of registration, however, since some state boards consider it more fair to the physician to accept his credentials, if satisfactory, whether the state board issuing the original license returns the favor or not. Had not reciprocal relations been established by the 33 states shown in the table, 1,167 physicians, the majority of whom have been in practice for many years, would have been compelled to undergo the ordeal of a second trying examination.

IN CONCLUSION

In the publication of these statistics, our endeavor has been to give an absolutely fair presentation of facts, a knowledge of which is always beneficial. Without question this annual presentation of the results of state licensing examinations has had a most helpful influence on medical education and medical licensure in this country. We reiterate our acknowledgements to the state licensing boards whose ready cooperation and complete reports have made the publication of these data possible.

TABLE K.—COLLEGES HAVING OVER 20 PER CENT. OF FAILURES BEFORE STATE BOARDS IN 1909. BASED ON TABLE C.

College	Total Examined.	Number Passed.	Number Failed.	Per Cent. Failed.	No. of States.
ARKANSAS					
College of Physicians and Surgeons	7	3	4	57.1	3
University of Arkansas, Medical Dept.	16	8	8	50.0	4
CALIFORNIA					
College of Phys. and Surg., Los Angeles	9	7	2	22.2	4
College of Phys. and Surg., San Francisco	25	18	7	28.0	4
Hahnemann Medical College of the Pacific	13	8	5	38.4	2
DISTRICT OF COLUMBIA					
Howard University, Medical Department	48	33	15	31.2	13
GEORGIA					
Medical College of Georgia	37	24	13	35.1	7
ILLINOIS					
Bennett Medical College	48	36	12	25.0	10
College of Medicine and Surgery—Ph.M.	9	4	5	55.6	1
Hahnemann Medical College	41	32	9	22.0	13
Illinois Medical College	40	29	11	27.5	9
Jenner Medical College	29	17	12	41.4	3
National Medical University	19	11	8	42.1	6
Reliance Medical College	20	14	6	30.0	1
LOUISIANA					
Flint Medical College	7	3	4	57.1	3
MARYLAND					
Baltimore Medical College	124	87	37	29.8	21
Maryland Medical College	69	42	27	39.1	16
Woman's Medical College of Baltimore	9	6	3	33.3	5
MASSACHUSETTS					
College of Physicians and Surgeons	25	11	14	56.0	6
MINNESOTA					
Hamline University, Medical Department	31	21	10	32.3	6
MISSISSIPPI					
Mississippi Medical College	21	7	14	66.7	3
MISSOURI					
Barnes Medical College	103	69	34	33.0	14
Ensworth Medical College	42	28	14	33.3	8
Kansas City Hahnemann Medical College	20	14	6	30.0	8
St. Louis College of Physicians and Surg.	101	57	44	43.6	14
Western Eclectic College of Med. and Surg.	5	4	1	20.0	1
NEBRASKA					
Lincoln Medical College	11	8	3	27.3	4
NORTH CAROLINA					
Leonard Medical College	47	31	16	34.0	12
OREGON					
Willamette University, Medical Department	26	19	7	26.9	4
University of Oregon, Medical Department	27	20	7	25.9	4
SOUTH CAROLINA					
Medical College of State of South Carolina	40	26	14	35.0	3
TENNESSEE					
Chattanooga Medical College	33	24	9	27.3	8
College of Physicians and Surg., Memphis	11	8	3	27.3	5
Knoxville Medical College	15	8	7	46.7	5
Memphis Hospital Medical College	108	78	30	27.8	10
Meharry Medical College	129	65	64	49.5	17
University of West Tennessee, Med. Dept.	12	7	5	41.7	5
WISCONSIN					
Marquette University, Medical Department	30	20	10	33.3	7
Totals	1407	907	500	35.5	

TABLE M.—REGISTRATION BY STATE BOARDS DURING 1908

States.	By Examination.			By Reciprocity.	Without Written Exam. or Under Exemption.	Total Registered.
	Graduates, 1905-1908.	Graduates, 1904 and Previous.	Non-Graduates.			
Alabama	64	5	10	.....	.....	79
Arizona	8	11	.....	.....	.....	19
Arkansas	37	22	52	2	12	125
California	132	52	.....	.....	.....	184
Colorado	34	2	.....	140	.....	176
Connecticut	40	12	.....	2	.....	54
Delaware	17	2	.....	1	.....	20
District of Columbia	39	7	.....	11	.....	57
Florida	50	20	.....	.....	.....	70
Georgia	134	9	.....	6	.....	149
Idaho	26	28	.....	.....	.....	54
Illinois	624	21	.....	41	.....	686
Indiana	96	6	.....	42	.....	144
Iowa	96	2	.....	83	.....	181
Kansas	108	13	.....	98	.....	219
Kentucky	113	7	.....	17	.....	137
Louisiana	107	14	.....	11	.....	132
Maine	47	8	.....	12	.....	67
Maryland	126	4	.....	31	7	168
Massachusetts	182	26	5	.....	.....	213
Michigan	135	5	.....	43	5	188
Minnesota	86	4	.....	68	.....	158
Mississippi	60	13	57	.....	.....	130
Missouri	206	6	.....	.....	.....	212
Montana	39	29	.....	.....	.....	68
Nebraska	70	4	.....	54	.....	128
Nevada	8	1	.....	8	.....	17
New Hampshire	15	5	.....	2	.....	22
New Jersey	65	11	.....	40	.....	116
New Mexico	4	7	.....	.....	84	95
New York	524	42	.....	42	8	616
North Carolina	96	8	7	13	.....	124
North Dakota	37	14	.....	24	.....	75
Ohio	186	6	.....	55	.....	247
Oklahoma	64	28	.....	58	.....	150
Oregon	61	33	1	.....	.....	95
Pennsylvania	455	19	.....	.....	.....	474
Rhode Island	19	4	.....	.....	.....	23
South Carolina	46	0	.....	6	.....	52
South Dakota	46	14	.....	.....	.....	60
Tennessee	191	10	76	16	18	311
Texas	138	43	.....	95	.....	276
Utah	26	2	.....	16	.....	44
Vermont	29	9	.....	4	.....	42
Virginia	126	9	1	12	.....	148
Washington	88	60	.....	.....	.....	148
West Virginia	99	6	.....	.....	.....	105
Wisconsin	49	7	.....	82	.....	138
Wyoming	8	4	.....	22	.....	34
Totals	5046	674	209	1167	134	7230

This table shows the total number registered during 1909 in each state by the various methods. The first column shows the recent graduates registered, the second column, the old practitioners (graduates of 1904 and previous years), the third column the non-graduates, and the fourth column shows the number licensed through reciprocity. It is interesting to note that states which have registered large numbers through reciprocity have examined very few "old practitioners." The chief exception is New York, which has arranged reciprocal relations with only six other states. The fifth column shows those registered without written examination under various exemption clauses. The last column shows the total number of physicians registered in each state during the year. The figures for Alabama are complete here, but one of the two reports could not be included in the other tables, since the list of failures was not sent in.

TABLE N.—PHYSICIANS REGISTERED THROUGH RECIPROCITY BY STATE EXAMINING BOARDS DURING 1909

State Board of	Total Registered by Each State Thro' Reciprocity.	Alabama	Arkansas	Arizona	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Nebraska	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	West Virginia	Wisconsin	Wyoming	U. S. Army	Foreign
Arkansas	2												1																																			
Colorado	140	2	1	1			1		1	1		1	27	5	14	8	2		1		1	5	2		9	6			5	13	1		12	4	6	1		1	2	1	1	1			2	1		
Connecticut	2													1							1																											
Delaware	1																			6					1					1														3				
District of Columbia	11																														1																
Georgia	6																			1	1																							1			
Illinois	41												4	7	3	1		2			3	2			2	1		1						6										2	4		
Indiana	42								1				14	1	2			1			7		2	1	1																			1			
Iowa	83												50	1	6						3	2	1	1	11			1						1									1	1	4		
Kansas	98				5		1			1			33	9	7		6		1	1	4	1			13			2						1					1	1				1	8		2
Kentucky	17					1							1	2		1					1		1	1																4				4	2			
Louisiana	11				1								3	2			1				2				2																		1				
Maine	12							1													2		1	1				2															1	5			
Maryland	31						5		3				1	1			1						1		2									3									2		3	6	2		
Michigan	43				1		1		1				16	2	1	1				4	1		1		1									5									1		3		1
Minnesota	68												30	3	12	3				1		6		2	1				2				4	3								1		10		
Nebraska	54												10		19	10				1		1		4		3							1	1									3	1	2		
Nevada	8												3		1										3																			1			
New Hampshire	2																			1		1																									
New Jersey	40				1								1								1									28													1		1			
New York	42																			3		7																					15					
North Carolina	13								1				1	1						1	1										19		1		3			1			1		4			1	
North Dakota	34												18							1		1	12								1													1		
Ohio	55								1				15	9	1					2	5				11																		10	1		
Oklahoma	58												21	2		8	1							13	1																	7		1	2	1		
South Carolina	6																			1																									4	1			
Tennessee	16									4			2					7							3																							
Texas	95			1						1			33	5	3		6		1	5		2	2		18	4		1	2					2										1	7	1		
Utah	16				5								1	1	4		1			1																										3		
Vermont	4																																	2	1	1									1			1
Virginia	12							2									1			2													1			3								2			
Wisconsin*	82							1					46		4		2	1	1	1		2	9		1				1					1	2								1	1				1
Wyoming	22												3	1	3	1										8								1										2	1				
Total received from each state through reciprocity	1167	2	1	2	1	12	2	1	1	3	1	0	1	320	46	77	41	30	2	18	25	3	51	35	1	58	53	2	8	29	7	59	7	5	47	5	7	1	7	1	21	4	4	24	26	36	46	2	3	4

* For six candidates, the names of states where original licenses were granted, were not obtained.

This table shows the number of physicians registered by each state through reciprocity during 1909. "Reciprocity" is not the best term to use, however, since some states, Colorado for instance, register candidates who have satisfactory credentials including licenses, regardless as to whether the state issuing the original license reciprocates with those states or not. Taking New York as an example, reading from left to right, the table shows that New York registered a total of 42 applicants through reciprocity during 1909, of which number 7 came from Michigan, 19 from New Jersey, 3 from Ohio and 13 from Vermont. Reading from above downward, the table shows that 59 physicians left New York during 1909 and registered in other states under the reciprocity provision, of which number 13 registered in Colorado, 1 in Connecticut, 1 in Delaware, 3 in Michigan, 28 in New Jersey, 1 in North Carolina, 11 in Ohio and 1 in Vermont. Colorado leads, having registered 140 physicians through reciprocity, followed by Kansas which registered 98, Texas with 95, Iowa with 83 and Wisconsin with 82. It is interesting to note in what states the original licenses were issued. The table shows that of the 1,167 applicants registered through reciprocity, 320 or 27.4 per cent. obtained their original licenses in Illinois, the states furnishing the three next highest numbers being Iowa with 77, New York with 59 and Missouri with 58.

Altogether 1,167 licenses were issued through reciprocity in 1909, an increase of 75 over 1908, 178 over 1907 and 482 over 1906.

Margin Number	NAME OF COLLEGE	1 Alabama*		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 District of Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		Margin Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	ALABAMA																																								
1	Birmingham Medical College.—R																																							1
2	University of Alabama, Med. Dept.—R	1	0			1	0											4	0	2	0			1	0															2
	ARKANSAS																																							
3	College of Physicians and Surg.—R					1	2																																	3
4	Univ. of Arkansas, Med. Dept.—R					4	5																	0	1							2	1							4
	CALIFORNIA																															2	2							
5	California Eclectic Med. College.—E							1	1																															5
6	College of P. and S., Los Angeles.—R			1	0			4	2																															6
7	Coll. of P. and S., San Francisco.—R							15	8																															7
8	Cooper Medical College.—R							24	3																															8
9	Hahnemann Med. Coll. of Pacific.—H							8	5																															9
10	Oakland Coll. of Med. and Surg.—R							3	0																															10
11	Univ. of California, Med. Dept.—R							9	0																															11
12	Univ. of Southern California.†—R							26	6																													1	0	12
	COLORADO																																							
13	Denver and Gross Coll. of Med.—R							3	0	18	1															1	0			1	0									13
14	Univ. of Colorado, Med. Dept.—R							1	0	5	0											3	1																	14
	CONNECTICUT																																							
15	Yale Medical School.—R							2	0			8	1					1	0					1	0											3	0			15
	DISTRICT OF COLUMBIA																																							
16	George Washington University.—R															21	9	1	0	1	0			2	0			2	0	1	0					4	1			16
17	Georgetown Univ., School of Med.—R			1	0							2	1			2	1																	1	0		3	0		17
18	Howard University, Med. Dept.—R					2	0					0	1			9	7							1	0					1	0					6	1	5	3			18
	GEORGIA																																							
19	Atlanta College of Phys. and Surg.—R			1	0													3	1	31	4																			19
20	Atlanta School of Medicine.—R																	12	1	43	5																			20
21	Georgia Coll. of Eclectic M. & S.—E																																							21
22	Hospital Medical College, Atlanta.—E																																							22
23	Medical College of Georgia.—R					0	3	1	1									2	0	19	3													0	1			0	1	23
	ILLINOIS																																							
24	American Med. Missionary College.—R							1	0																															7	0	24
25	Bennett Medical College.—R			1	0	1	0			0	1											0	1	29	9	1	0			1	1	1	0							25
26	Chicago Coll. of Med. and Surg.—R									0	1							2	0			1	0	81	7	1	0	0	2											26
27	College and Med. and Surg.—Ph.M																							4	5															27
28	College of Phys. and Surg.—R							4	3															93	7	2	0	4	0	2	1	1	0					1	0	28
29	Hahnemann Med. Coll. and Hosp.—H					1	0	4	3			0	2			1	0	1	0	1	0	2	0	93	7	2	0	3	0	2	0							2	0	1	0	29
30	Hering Medical College.—H																					0	1	16	6			3	0	2	0									30
31	Illinois Medical College.—R					1	0																	6	0	1	0													31
32	Jenner Medical College.—R																							22	7	2	0													32
33	National Medical University.—P	0	1																					17	10	0	1													33
34	Northwestern Univ. Med. School.—R			1	0			7	1															8	6	1	0													34
35	Reliance Medical College.—R																					3	2	122	3	3	0	5	0	2	0	1	0					2	0	35
36	Rush Medical College.—R					1	0	6	3	1	0											7	0	67	14	6														36
																									0															
	INDIANA																																							
37	Indiana Univ., School of Med.—R																									55	0			1	0									37
	IOWA																																							
38	Drake Univ., College of Medicine.—R																							0	1			18	2											38
39	State Univ. of Iowa, Coll. of Med.—R					1	0	3	2													3	0	1	0			43	2											39
40	State Univ. of Iowa, Homeo. Dept.—H			1	0																							3	0											40
	KANSAS																																							
41	Kansas Medical College.—R											1	0																	20	1			1	0					41
42	Univ. of Kansas, School of Med.—R							1	0													0	1							9	0									42
	KENTUCKY																																							
43	Louisville National Med. College.—R																															1	0							43
44	Southwestern Homeo. Med. Coll.—H																															1	0							44
45	Univ. of Louisville, Med. Dept.—R			2	0	3	1	2	3	0	1	1	0					2	1	1	0			9	4	15	1			4	2	92	14	3	1					45
	LOUISIANA																																							
46	Flint Medical College.—R					1	1																											2	2					46
47	Tulane University, Med. Dept.—R					5	0	1	0									3	0					1	0					1	0			57	1					47
	MAINE																																							
48	Medical School of Maine.—R																																			19	1	8	0			48
	MARYLAND																																							
49	Atlanta Medical College.—P											0	1	2	0	1	0																			3	1			49
50	Baltimore Medical College.—R							1	1	1	1	3	1	1	0	1	1			2	0															2	2	13	7	16	15	50
51	College of Phys. and Surg.—R			2	0							2	0			0	1	3	0	1	0	1	0														14	0	4	1	51
52	Johns Hopkins Univ., Med. Dept.—R							2	0	2	0	1	0			1	0			1	0			3	0	2	0	2	0								17	0	2	0	52
53	Maryland Medical College.—R					1	0			0	1	1	1	0	1	0	1			2	0			1	0							1	1	5	0	8	11	0	2	53
54	Univ. of Maryland, School of Med.—R							1	2	1	0			2	0	1	0	2	0	3	0					2	0									40	4			54
55	Woman's Med. Coll. of Baltimore.—R																											1	0								2	3		55
	MASSACHUSETTS																																							
56	Boston Univ. School of Medicine.—H	0	1					1	0			0	1																							3	0	15	1			56
57	College of Phys. and Surgeons.—R																			1	0															5	3		5	11		57
58	Harvard Medical School.—R							7	1			3	0																							2	0		38	1		58
59	Tufts College Medical School.—R							1	1			1	0																							6	0		55	8		59
	MICHIGAN																																							
60	Detroit College of Medicine.—R																					4	0																36	0	60
61	Detroit Homeopathic College.—H																																						5	0	61
62	Univ. of Mich., Dept. of M. and S.—R	1	0	2	1			2	4	1	0					2	0	1	0			2	0			1	0							1	0	1	0		63	0	62
63	Univ. of Michigan, Homeo. College.—H							1	2																					1	0								16	1	63
	MINNESOTA																																							
64	Univ. of Minn., Coll. of M. & S.—R							3	1													2	0														0	1		64
65	Hamline University, Med. Dept.—R																																							65
	MISSISSIPPI																																							
66	Mississippi Medical College.—R																	1	0																					66
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21	

R—Regular; H—Homeopathic; E—Eclectic; Ph.M—Physiomedical; P—Panpathic.
* One report not complete. † Now the Los Angeles Medical Department of the University of California.

| Margin Number | 22 Minnesota | | 23 Mississippi | | 24 Missouri | | 25 Montana | | 26 Nebraska | | 27 Nevada | | 28 New Hampshire | | 29 New Jersey | | 30 New Mexico | | 31 New York | | 32 North Carolina | | 33 North Dakota | | 34 Ohio | | 35 Oklahoma | | 36 Oregon | | 37 Pennsylvania | | 38 Rhode Island | | 39 South Carolina | | 40 South Dakota | | 41 Tennessee | | 42 Texas | | 43 Utah | | 44 Vermont | | 45 Virginia | | 46 Washington | | 47 West Virginia | | 48 Wisconsin | | 49 Wyoming | | Totals: | | Examined— Passed | Examined— Failed | Percentage of Failures | | No. States Ex. in | Margin Number |
|---|---|---

Margin Number	NAME OF COLLEGE	1 Alabama* P	F	2 Arizona P	F	3 Arkansas P	F	4 California P	F	5 Colorado P	F	6 Connecticut P	F	7 Delaware P	F	8 District of Columbia P	F	9 Florida P	F	10 Georgia P	F	11 Idaho P	F	12 Illinois P	F	13 Indiana P	F	14 Iowa P	F	15 Kansas P	F	16 Kentucky P	F	17 Louisiana P	F	18 Maine P	F	19 Maryland P	F	20 Massachusetts P	F	21 Michigan P	F	Margin Number
	MISSOURI																																										
67	American Medical College.—E					2	1	1	0	0	1							1	1			0	1																			67
68	Barnes Medical College.—R					1	0			0	1											1	0							12	8									68
69	Ensworth Medical College					1	0															0	1			1	0			10	1									69
70	Kansas City Hahnemann Medical College.—H					1	0															2	2	28	0					1	0									70
71	St. Louis University, School of Medicine.—R					1	0																	30	18	2	1	2	2	1	1									71
72	St. Louis College of Phys. and Surgs.—R					0	1	1	0	0	1													1	0			1	0											72
73	University of Missouri, Medical Dept.—R																							1	0			1	0											73
74	University Medical College, Kansas City.—R					1	0	1	0	0	1											1	0	0	1			1	0	29	1									74
75	Western Eclectic Coll. of Med. and Surg.—E																													4	1									75
76	Washington University, Med. Department.—R							2	1															30	1	1	0	1	0											76
	NEBRASKA																																								
77	John A. Creighton Medical College.—R							1	1													1	0					1	0	2	0									77
78	Lincoln Medical College.—E									0	1							1	0											0	1									78
79	University of Nebraska, College of Med.—R																																							79
	NEW HAMPSHIRE																																							
80	Dartmouth Medical School.—R							1	0																									1	0			3	1			80
	NEW YORK																																							
81	Albany Medical College.—R													1	0																							1	1			81
82	Columbia Univ. Coll. of Phys. and Surg.—R							1	0			3	0							1	0			1	0													4	1			82
83	Cornell University Medical College.—R							2	0			4	0			1	0																					2	0			83
84	Eclectic Med. Coll., of City of New York.—E											1	0																											84
85	Fordham University, School of Medicine.—R																																							85
86	Long Island College Hospital.—R											3	0									0	1															1	1	1	0	86
87	New York Homeo. Med. Coll. and Hosp.—H							1	1			4	0																	1	0							1	0			87
88	N. Y. Med. Coll. and Hosp. for Women.—H																																							88
89	Syracuse University, College of Medicine.—R											1	0			1	0																					1	0			89
90	University and Bellevue Hosp. Med. Coll.—R	1	0									2	0					1	0			1	0			1	0											1	0			90
91	University of Buffalo, Medical Dept.—R							1	0																															91
	NORTH CAROLINA																																							
92	Leonard School of Medicine.—R	0	1															5	0	5	2															1	0	0	1			92
93	North Carolina Medical College.—																	4	0	2	1																			93
94	University of North Carolina, Med. Dept.—R																					1	0																	94
	OHIO																																							
95	Cleveland College of Phys. and Surgs.—R																																							95
96	Cleveland Homeopathic Medical College.—H																																							96
97	Eclectic Medical College.—E																					1	1	1	0							1	0							97
98	Medical College of Ohio.—R			1	0															2	0	1	0	2	0	1	0					3	0							98
99	Miami Medical College.—R																																	3	0							99
100	Pulte Medical College.—H																																	2	0	1	0					100
101	Starling-Ohio Medical College.—R							1	0											1	0			1	0			1	0											101
102	Toledo Medical College.—R																																							102
103	Western Reserve University, Medical Dept.—R			1	1																																			103
	OKLAHOMA																																							
104	Epworth College of Medicine.—R																																							104
	OREGON																																							
105	Willamette University, Medical Dept.—R			0	1																																			105
106	University of Oregon, Medical Dept.—R								0	1												1	0																	106
	PENNSYLVANIA																																							
107	Hahnemann Med. College and Hospital.—H							1	1			1	0	3	0	1	0													1	0			1	0			2	1			107
108	Jefferson Medical College.—R			1	1			4	5			1	1	3	0	1	0	2	0	2	0	1	0	2	0	1	0	1	0			1	0			2	0	4	0	2	0	1	0	108
109	Medico-Chirurgical College of Philadelphia.—R							1	1			1	0	1	1							1	0															1	0	0			109
110	Temple University, Medical Department.—R																																					1	0			110
111	Univ. of Pennsylvania, Dept. of Med.—R	1	0					3	0			1	0	5	0	1	1	1	0					1	0	2	0									15	1	3	0			111
112	Western Pennsylvania Medical College.—R											0	1																											112
113	Woman's Med. Coll. of Pennsylvania.—R							1	0							1	0													1	0							3	0			113
	SOUTH CAROLINA																																							
114	Med. Coll. of the State of So. Carolina.—R			1	0													1	1	1	0			0	1															114
	TENNESSEE																																							
115	Chattanooga Medical College.—R			0	1													1	0	3	1	1	1																	115
116	College of Phys. and Surgs., Memphis.—R					0	1																											1	0					116
117	Knoxville Medical College.—R																			0	2									0	1									117
118	Memphis Hospital Medical College.—R					5	1													2	0													24	15					118
119	Meharry Medical College.—R	0	1			5	12			0	2							2	2	11	7			2	3					2	1	1	2	1	6					119
120	Tennessee Medical College.—R																					0	1																	120
121	University of Nashville, Medical Dept.—R	0	1	1	0	3	0											1	0			0	1	1	0									2	0	8	0			121
122	University of Tennessee, Dept. of Med.—R					5	0											1	0	1	0			0	1									0	1	0	0			122
123	University of West Tennessee, Med. Dept.—R					0	2											0	1	0	2																			123
124	Vanderbilt University, Medical Department.—R	1	0			3	0	0	1											1	0			1	1									2	0	2	0			124
	TEXAS																																							
125	Baylor University, College of Medicine.—R																																							125
126	Fort Worth University, Medical Dept.—R					1	0																																	126
127	Southwestern University Medical College.—R																																							127
128	University of Texas, Dept. of Medicine.—R																																							128
	VERMONT																																							
129	University of Vermont, College of Med.—R							2	2			3	1					0	1																			10	1			129
	VIRGINIA																																							
130	Medical College of Virginia.—R																																					1	0			130
131	University of Virginia, Dept. of Medicine.—R					1	0											1	0													1	0			1	0			131
132	University College of Medicine.—R																			1	0															0	1	0	2			132
	WISCONSIN																																								
133	Marquette University, Medical Dept.—R																											1	0											133
134	Wisconsin College of Phys. and Surgs.—R																											1	0											134
135	Canadian Colleges					1	0	5	0	2	0	2	0			1	0	1	0			3	0	6	1			1	0							2	2	1	0	9	5			135
136	Foreign Colleges							3	2			1	1					1	0					5	3					1	0					0	1			6	3	1	0	136
137	Miscellaneous Medical Colleges	0	2	2	1	6	0	6	4	5	2	1	0	1	0			5	3	4	1	4	3	6	6	6	0	3	5	6	0	7	1	1	2	3	0	3	4	1	2			137
138	Undergraduates	2	13			32	101																															5	33			138
	Totals by States	27		25		242		257		51		65		21		67		82		171		77		762		105		112		141		138		154		65		163		308		142		
	Totals—Examined—Passed	7		19		111		184		36		52		19		46		70		143		54		645		102		98		121		120		121		55		130		213		140		
	Totals—Examined—Failed	20		6		131		73		15		13		2		21		12		28		23		117		3		14		20		18		33		10		83		93		2		
	Percentage of Failures	74.1		24.0		54.1		28.4		29.4		20.0		9.5		31.3		14.6		16.4		29.9		15.4		2.9		12.5		14.2		13.0		21.4		15.4		20.2		30.8		1.4		
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		

R—Regular; H—Homeopathic; E—Eclectic; Ph.M—Physiomedical; P—Panpathic.
* One report not complete. † Now the Los Angeles Medical Department of the University of California.

Margin Number	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	Totals:	Examined— Passed	Examined— Failed	Percentage of Failures	No. States Ex. in	Margin Number
	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming						
	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
67			3 6									1 1									1 0								7	5	2	28.6	4	67
68	0 1		31 14	0 3	1 1							1 0	3 1	1 2							1 0				1 0				117	76	41	35.0	17	68
69			7 3		7 1								1 0												0 2				44	29	15	34.1	8	69
70			1 2	0 1									0 1												1 0				20	14	6	30.0	8	70
71	1 1		40 1	0 1									3 1		2 1										2 1		1 0		89	80	9	10.1	12	71
72	0 1		16 15							1 0			1 2		2 1	1 0			0 1		3 3	1 0			1 2				112	62	50	44.6	17	72
73			3 0										1 1		1 0														8	7	1	12.5	6	73
74			24 12	1 2	1 0	1 0							1 1			1 0					1 0				2 1				86	67	19	22.1	15	74
75																													5	4	1	20.0	1	75
76			43 3	1 1																					1 0				87	80	7	8.0	9	76
77	1 0		1 0	1 0	26 1					0 1					1 0				3 0					7 1		1 0	1 0	51	47	4	7.8	14	77
78			0 1		8 0																								12	9	3	25.0	5	78
79					9 0																				1 0				10	10	0	0.	2	79
80							5 12			1 1							2 0												17	13	4	23.5	6	80
81								1 0		31 3				1 0															39	35	4	10.3	5	81
82	1 0	1 0	1 0	1 1				2 0		81 3	1 0		1 0			3 9		1 0		2 0	1 0				1 0		1 0		113	108	5	4.4	19	82
83		1 0						3 0		55 0							2 0												71	71	0	0.	9	83
84										10 1											1 0								13	12	1	7.7	3	84
85										10 0													1 0						10	10	0	0.	1	85
86										82 9													2 0						100	89	11	11.0	6	86
87								1 0		11 2						2 0													24	21	3	12.5	7	87
88										4 0																			4	4	0	0.	1	88
89										33 1			1 0			1 0													39	38	1	2.6	6	89
90				1 0			1 0	1 0		78 1		2 0	1 0	1 1											1 1				97	94	3	3.1	15	90
91								1 0		29 2					1 0	2 0							1 0		1 0				37	35	2	5.4	6	91
92		0 1									10 3			0 1		2 1		0 4						6 2		2 0			47	31	16	34.0	12	92
93											14 0			1 0				2 0											23	23	0	0.	6	93
94											12 1				0 1					2 0									17	15	2	11.8	4	94
95										1 0			16 0							1 0									19	19	0	0.	4	95
96													7 0	1 0						1 0									10	10	0	0.	4	96
97										1 0			4 1	1 0		3 0									1 0	3 1			20	16	4	20.0	10	97
98				1 0									28 1	1 0											1 0				43	42	1	2.3	11	98
99													14 4		3 0														24	20	4	16.7	3	99
100													4 0		1 1										2 0				11	10	1	9.1	5	100
101													48 3		1 1	1 1										2 0		1 0	62	57	5	8.1	9	101
102													5 1												2 0				8	7	1	12.5	2	102
103										2 0			25 0			3 0													32	31	1	3.1	4	103
104														3 0															3	3	0	0.	1	104
105				1 0		1 0									11 8										6 1				29	19	10	34.5	5	105
106															16 6										4 0				28	21	7	25.0	4	106
107	1 0	0 1						7 1		2 3			3 0	1 0		59 2			0 1				1 0			1 0			75	65	10	13.3	17	107
108	4 3	1 0	1 0	4 1	3 0			15 1		9 1	8 0	2 0	6 0	2 0	2 1	80 1		1 2	0 1	0		1 0	4 0	1 0	1 0	5 1	3 0	1 0	1 0	202	186	16	7.9	39	108
109								8 0		2 2			2 0		0 1	68 1									1 0	2 0	3 0			98	93	5	5.1	14	109
110																19 1											1 0			24	21	1	4.5	3	110
111		1 0	2 0	1 0				13 0		10 0	4 0		3 0	0 1	1 1	74 0			1 0	1 0					3 0		1 0			155	78	68	43.9	25	111
112				1 0						1 0						57 0									1 0	9 0			77	70	7	9.1	7	112
113					4 0			1 0		2 1					1 0	15 0									1 0	1 0			29	28	1	3.4	11	113
114										1 0						1 0		24 14							1 0				46	30	16	34.8	8	114
115		1 0									2 3			1 1						19 0	1 1				1 3		1 2		44	31	13	29.5	11	115
116		1 2																		3 0	1 0								11	8	3	27.3	5	116
117		0 1									0 2			2 2						6 0									16	8	8	50.0	6	117
118		22 14	1 1							3 1										29 0	10 4			0 2					133	96	37	27.8	10	118
119		1 15	4 7								0 1		0 1	4 1				2 5		28 0	5 3			0 1					136	68	68	50.0	18	119
120			1 0								3 1			1 0	1 1					17 0					1 1				28	21	7	25.0	7	120
121		4 6	0 1							2 0	1 2			3 1						27 0	3 2			1 0	0 1	1 0			83	64	19	22.9	19	121
122		2 2			1 0					1 0	2 1				1 0					9 0	4 0			0 1	1 0				39	33	6	15.4	15	122
123														1 0						8 0									12	7	5	41.7	5	123
124		3 1	1 0					1 0		1 0				0 0						14 0	7 1				1 1				49	44	5	10.2	16	124
125																					13 0								13	13	0	0.	1	125
126																					12 0								13	13	0	0.	2	126
127																					8 1								9	8	1	11.1	1	127
128														3 1							33 0								39	38	1	2.6	2	128
129				1 0			1 3	2 0		1 0					2 0	1 0					1 0		22 0		1 0	1 0			56	48	8	14.3	14	129
130										0 1	3 0							1 0						31 3		3 0			43	39	4	9.3	6	130
131		1 1												1 0										13 3	1 0	3 0	1 0		28	24	4	14.3	10	131
132											14 0													34 1	1 0	1 0				55	51	4	7.3	7	132
133				1 1						1 0		2 0			1 0										1 0		15 10		33	22	11	33.3	7	133
134				1 0								3 0													1 0		13 1		20	19	1	5.0	5	134
135	2 1			5 1			1 0	3 0		22 0		2 1	4 0		2 1	2 3	3 0	3 3		2 1			2 1	1 0	14 1	1	2 0		121	101	20	16.5	22	135
136	1 0			2 1			0 1	3 3		19 25			1 0	13 4	1 1	5 1	0 1				2 0	0 1		1 0	3 0		1 0		101	57	44	43.6	22	136
137	3 0	6 4	3 2	5 5	9 2	1 0	1 1	2 2	1 2	2 1	3 1	2 0	11 10	7 2	5 5			0 1	3 0	11 0	12 1	0 1	1 0	5 5	6 8	9 1	0 2	2 0	0	286	184	102	50.0	46	137
138		57 85								7 0				1 3						76 4				1 0					438	201	237	54.1	8	138
	115	284	282	91	82	9	30	88	15	638	129	47	205	136	145	501	33	79	81	281	200	32	40	176	197	115	69	12	7287					
	90	130	212	68	74	9	20	76	11	566	111	41	192	92	95	474	23	46	60	277	181	28	38	136	148	105	56	12	3857					
	25	154	70	23	8	0	10	12	4	72	18	6	13	44	50	27	10	33	21	4	19	4	2	40	49	10	13	0	1430					
	21.7	54.2	24.8	25.3	9.8	0.	33.3	13.6	26.7	11.3	14.0	12.8	6.3	32.4	34.5	5.4	30.3	41.8	25.9	1.4	9.5	12.5	5.0	22.7	24.9	8.7	18.8	0.				19.6		
	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49						

Margin Number	NAME OF COLLEGE	1 Alabama*		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 District of Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		Margin Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	ALABAMA																																									
1	Birmingham Medical College.—R																																									1
2	University of Alabama, Medical Department.—R																	2	0	1	0																					2
	ARKANSAS																																										
3	College of Physicians and Surgeons.—R					1	2																									2	1									3
4	University of Arkansas, Medical Dept.—R					2	5																	0	1							1	1									4
	CALIFORNIA																																									
5	California Eclectic Medical College.—E							0	1																																	5
6	College of P. and S., Los Angeles.—R			1	0			2	0																																	6
7	College of P. and S., San Francisco.—R							2	1																																	7
8	Cooper Medical College.—R							18	1																																	8
9	Hahnemann Medical College of Pacific.—H							2	3																																	9
10	Oakland College of Medicine and Surgery.—R							3	0																																	10
11	University of California, Medical Dept.—R							5	0																																	11
12	University of Southern California.†—R							13	2																																1	0	12
	COLORADO																																									
13	Denver and Gross College of Medicine.—R							1	0	13	1																																	13
14	University of Colorado, Medical Dept.—R									5	0											1	0																					14
	CONNECTICUT																																									
15	Yale Medical School.—R											5	1											1	0															1	0			15
	DISTRICT OF COLUMBIA																																										
16	George Washington Univ., Dept. of Med.—R															11	1																			3	0							16
17	Georgetown University, School of Medicine.—R											1	0			1	1																							1	0			17
18	Howard University, Medical Department.—R					1	0									1	2																			3	0	0	1					18
	GEORGIA																																									
19	Atlanta College of Physicians and Surgeons.—R																	2	0	30	4																					19
20	Atlanta School of Medicine.—R																	8	1	43	5																					20
21	Georgia College of Eclectic M. and S.—E																																									21
22	Hospital Medical College, Atlanta.—E																																									22
23	Medical College of Georgia.—R																			19	2																					23
	ILLINOIS																																										
24	American Medical Missionary College.—R																																							6	0	24
25	Bennett Medical College.—R					1	0			0	1													37	6					0	1											25
26	Chicago College of Medicine and Surgery.—R																	3	0					79	5	1	0	0	2													26
27	College of Medicine and Surgery.—Ph.M																							5	3																	27
28	College of Physicians and Surgeons.—R							2	1															89	5	1	0	4	0	2	0	1	0							1	0	28
29	Hahnemann Medical College and Hospital.—H											0	2									0	1	13	2			1	0	1	0											29
30	Hering Medical College.—H																							6	0	1	0															30
31	Illinois Medical College.—R																							19	2	1	0															31
32	Jenner Medical College.—R																							13	3																	32
33	National Medical University.—P																							6	3																	33
34	Northwestern University Medical School.—R							2	0													1	1	119	6	3	0	2	0	1	0	1	0							1	0	34
35	Reliance Medical College.—R																							14	6																	35
36	Rush Medical College.—R							3	0	1	0													63	0															1	0	36
	INDIANA																																										
37	Indiana University, School of Medicine.—R																									55	0															37
	IOWA																																									
38	Drake University, College of Medicine.—R																							0	1			18	1													38
39	State University of Iowa, College of Med.—R																							1				43	1													39
40	State University of Iowa, Homeo. Dept.—H																											3	0													40
	KANSAS																																										
41	Kansas Medical College.—R																													17	1											41
42	University of Kansas, School of Medicine.—R							1	0																					6	0											42
	KENTUCKY																																										
43	Louisville National Medical College.—R																																										43
44	Southwestern Homeopathic Medical College.—H																															1	0									44
45	University of Louisville, Medical Dept.—R			1	0	1	0											1	0					8	2	11	0			3	1	81	10							1	0	45
	LOUISIANA																																										
46	Flint Medical College.—R																															2	2									46
47	Tulane University, Medical Department.—R					1	0											2	0											1	0	55	1									47
	MAINE																																									
48	Medical School of Maine.—R																																	15	0			3	0			48
	MARYLAND																																									
49	Atlantic Medical College.—P											0	1	2	0																			3	1							49
50	Baltimore Medical College.—R											3	0																					1	0	11	5	6				50
51	College of Physicians and Surgeons.—R											2	0																							9	0	2	1			51
52	Johns Hopkins University, Medical Dept.—R											1	0											1	0	1	0	2	0							10	0	1	0			52
53	Maryland Medical College.—R																																	3	0	5	6	0	1			53
54	University of Maryland, School of Medicine.—R							0	1									1	0	2	0			1	0											33	5					54
55	Woman's Medical College of Baltimore.—R																											1	0								1	1				55
	MASSACHUSETTS																																									
56	Boston University School of Medicine.—H																																			2	0			10	1			56
57	College of Physicians and Surgeons.—R																																			1	0			4	0			57
58	Harvard Medical School.—R																																			1	0			22	1			58
59	Tufts College Medical School.—R																																			3	0			35	6			59
	MICHIGAN																																										
60	Detroit College of Medicine.—R																					1	0																	36	0	60
61	Detroit Homeopathic College.—H																																							5	0	61
62	Univ. of Michigan, Dept. of Med. and Surg.—R			1	1													1	0																					58	0	62
63	University of Michigan, Homeo. College.—H																																			1	0					14	0	63
	MINNESOTA																																										
64	University of Minnesota, Coll. of M. and S.—R																																										64
65	Hamline University, Medical Department.—R																																									65
	MISSISSIPPI																																										
66	Mississippi Medical College.—R																	1	0																							66
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		

R—Regular; H—Homeopathic; E—Eclectic; Ph.M—Physiomedical; P—Panpathic.
* One report not complete. † Now the Los Angeles Medical Department of the University of California.

Margin Number	22 Minnesota	23 Mississippi	24 Missouri	25 Montana	26 Nebraska	27 Nevada	28 New Hampshire	29 New Jersey	30 New Mexico	31 New York	32 North Carolina	33 North Dakota	34 Ohio	35 Oklahoma	36 Oregon	37 Pennsylvania	38 Rhode Island	39 South Carolina	40 South Dakota	41 Tennessee	42 Texas	43 Utah	44 Vermont	45 Virginia	46 Washington	47 West Virginia	48 Wisconsin	49 Wyoming	Totals: Examined—Passed	Examined—Failed	Percentage of Failures	No. States Ex. In	Margin Number
	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F					
1		1 0																											1	1	0	0.	1	1
2		2 0																											5	5	0	0.	3	2
3														0 1															7	3	4	57.1	3	3
4														1 0															11	4	7	63.6	4	4
5																													1	0	1	100.0	1	5
6																													3	3	0	0.	2	6
7						1 0																			1 0				5	4	1	20.0	3	7
8																									2 0				21	20	1	4.8	3	8
9				1 0																									6	3	3	50.0	2	9
10																													3	3	0	0.	1	10
11						1 0																							6	6	0	0.	2	11
12																													16	14	2	12.5	2	12
13										1 0																		1 0	17	16	1	5.9	4	13
14																													6	6	0	0.	2	14
15																	1 0												9	8	1	11.1	4	15
16																	1 0					1 0							17	16	1	5.9	4	16
17																1 0										3 0			8	7	1	12.5	3	17
18																		1 0			1 0			6 0					16	13	3	18.7	7	18
19											2 0										2 0								40	36	4	10.0	4	19
20											3 0																		62	56	6	9.7	3	20
21																																		21
22																																		22
23																		3 0											23	21	2	8.7	2	23
24																													6	6	0	0.	1	24
25																12 0						1 0							42	31	11	26.2	6	25
26		1 0				0 1													2 0		1 0					1 0			97	89	8	8.2	10	26
27																													6	3	3	50.0	1	27
28	0 1													1 0	1 0				1 0						0 2		1 1		114	104	10	8.8	13	28
29																											1 0		21	16	5	23.8	6	29
30																													7	7	0	0.	2	30
31																													22	20	2	9.1	2	31
32																													16	13	3	18.7	1	32
33																													9	6	3	33.3	1	33
34	6 1					1 0						2 0		2 0	1 0				1 0			7 0			1 0		3 1	1 0	160	155	5	3.1	18	34
35																													20	14	6	30.0	1	35
36			2 0										1 0			1 0			1 0						1 0				74	74	0	0.	9	36
37													3 0								1 0								59	59	0	0.	3	37
38				1 0																									21	19	2	9.5	2	38
39												1 0							5 0						1 0				51	50	1	2.0	4	39
40															1 0														4	4	0	0.	2	40
41														1 0															19	18	1	5.3	2	41
42			6 0											1 0															14	14	0	0.	4	42
43						1 0																							1	1	0	0.	1	43
44																													1	0	1	0.	1	44
45		2 0	5 0								1 0	1 0		1 1	1 0	5 1				8 0	4 0			0 2		15 2			168	149	19	11.3	18	45
46		0 2												1 0															7	3	4	57.1	3	46
47		6 0	1 0										1 0	1 1							14 1			1 0					86	83	3	3.5	10	47
48							1 0																						19	19	0	0.	3	48
49																9 0	0 0	1											17	14	3	17.7	5	49
50								2 0		2 1						2 0	0 1				2 0			3 1		3 0			52	42	10	19.2	11	50
51				1 0				2 0			1 0					2 0	1 1							1 0		9 0			32	30	2	6.2	10	51
52								1 1		3 0	1 0					3 0					1 0			1 0					27	26	1	3.7	12	52
53																8 0								3 0		6 1			29	25	14	35.9	6	53
54					2 0						10 0					5 1	2 0	4 1			1 0			4 2		3 0			76	68	8	10.5	13	54
55											1 0																		4	3	1	25.0	3	55
56	1 0																												15	14	1	6.7	4	56
57									1 0																				12	6	6	50.0	3	57
58	1 0												2 0																27	26	1	3.7	4	58
59							2 0																						46	40	6	13.0	3	59
60																1 0													38	38	0	0.	3	60
61																													5	5	0	0.	1	61
62			2 0	3 0							1 0		2 0		2 0	4 0						1 0			2 0				78	78	1	1.3	12	62
63													2 0									1 0							17	17	0	0.	3	63
64	38 3											2 0															1 0		46	43	3	6.5	4	64
65	9 5																		2 0								1 0		15	10	5	33.3	2	65
66		5 9																		1 0									16	7	9	56.2	3	66
	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49					

Margin Number	NAME OF COLLEGE	1 Alabama*		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 District of Columbia		9 Florida		10 Georgia		11 Idaho		12 Indiana		13 Illinois		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		Margin Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	MISSOURI																																										
67	American Medical College.—E																							25	4					2	0											67
68	Barnes Medical College.—R					1	0	1	0													1	0							8	0											68
69	Ensworth Medical College.—R					1	0																							8	0											69
70	Kansas City Hahnemann Medical College.—H					1	0															0	1							10	1											70
71	St. Louis University, School of Medicine.—R																							28	0					1	0											71
72	St. Louis Coll. of Physicians and Surgeons.—R																							29	12	1	0	2	2													72
73	University of Missouri, Medical Department.—R																							1	0			1	0													73
74	University Medical College, Kansas City.—R							1	0																			1	0	23	0											74
75	Western Eclectic College of Med. and Surg.—E																													4	1											75
76	Washington University, Medical Department.—R																							28	1																	76
	NEBRASKA																																										
77	John A. Creighton Medical College.—R																											1	0													77
78	Lincoln Medical College.—E																																										78
79	University of Nebraska, College of Medicine.—R																																										79
	NEW HAMPSHIRE																																										
80	Dartmouth Medical School.—R																																			1	0			1	0			80
	NEW YORK																																										
81	Albany Medical College.—R													1	0																									1	0			81
82	Columbia University College of P. and S.—R											2	0							1	0																					82
83	Cornell University Medical College.—R							1	0			1	0																											1	0			83
84	Eclectic Med. College of City of New York.—E											1	0																													84
85	Fordham University, School of Medicine.—R																																									85
86	Long Island College Hospital.—R											1	0																													86
87	New York Homeo. Med. Coll. and Hosp.—H																																										87
88	New York Med. Coll. and Hosp. for Women.—H																																										88
89	Syracuse University, College of Medicine.—R																																									89
90	University and Bellevue Hospital Med. Coll.—R											1	0																													90
91	University of Buffalo, Medical Department.—R																																										91
	NORTH CAROLINA																																										
92	Leonard School of Medicine.—R																	3	0	3	0																	1	0			92
93	North Carolina Medical College.—R																	3	0	2	0																					93
94	University of North Carolina, Med. Dept.—R																																										94
	OHIO																																										
95	Cleveland Coll. of Physicians and Surgeons.—R																																										95
96	Cleveland Homeopathic Medical College.—H																																										96
97	Eclectic Medical College.—E																																	1	0								97
98	Medical College of Ohio.—R																																	1	0								98
99	Miami Medical College.—R																																	2	0								99
100	Pulte Medical College.—H																																	2	0								100
101	Starling-Ohio Medical College.—R																																									101
102	Toledo Medical College.—R																																										102
103	Western Reserve University, Medical Dept.—R																																										103
	OKLAHOMA																																										
104	Epworth College of Medicine.—R																																										104
	OREGON																																										
105	Willamette University, Medical Department.—R																																										105
106	University of Oregon, Medical Department.—R																					1	0																			106
	PENNSYLVANIA																																										
107	Hahnemann Medical College and Hospital.—H							0	1			1	0	1	0	1	0																									107
108	Jefferson Medical College.—R							1	0			1	1	3	0					2	0																					108
109	Medico-Chirurgical College of Philadelphia.—R											1	0	1	1																											109
110	Temple University, Medical Department.—R																																					1	●					110
111	University of Pennsylvania, Dept. of Med.—R											1	0	3	0													1	0									10	1			111
112	Western Pennsylvania Medical College.—R																													1	0											112
113	Woman's Medical College of Pennsylvania.—R															1	0																									113
	SOUTH CAROLINA																																										
114	Med. College of the State of South Carolina.—R																	1	1																							114
	TENNESSEE																																										
115	Chattanooga Medical College.—R																			1	1																					115
116	College of Physicians and Surgs., Memphis.—R					0	1																																			116
117	Knoxville Medical College.—H																																										117
118	Memphis Hospital Medical College.—R					1	1																											19	6								118
119	Meharry Medical College.—R					4	3													8	3			2	2					1	0	0	1	1	5							119
120	Tennessee Medical College.—R																																										120
121	University of Nashville, Medical Dept.—R	1	0	1	0																			4	0							2	0	4	0							121
122	University of Tennessee, Dept. of Medicine.—R			4	0																													4	0							122
123	University of West Tennessee, Med. Dept.—R			0	1																																					123
124	Vanderbilt University, Medical Department.—R							0	1													1	0											2	0	1	0					124
	TEXAS																																										
125	Baylor University, College of Medicine.—R																																										125
126	Fort Worth University, Medical Dept.—R																																										126
127	Southwestern University Medical College.—R																																										127
128	University of Texas, Dept. of Medicine.—R																																										128
	VERMONT																																										
129	University of Vermont, College of Medicine.—R											2	0																											4	0			129
	VIRGINIA																																										
130	Medical College of Virginia.—R																																										130
131	University of Virginia, Dept. of Medicine.—R					1	0																																			131
132	University College of Medicine.—R																					1	0															0	1			132
	WISCONSIN																																										
133	Marquette University, Medical Department.—R																													1	0											133
134	Wisconsin College of Physicians and Surgs.—R																													1	0											134
135	Canadian Colleges											1	0									1	0	2	0											1	0	1	2			135
136	Foreign Colleges							1	0									1	0																							136
137	Miscellaneous Medical Colleges									4	1							1	1					1	0	4	0	3	1							1	0					137
	Totals by States			5		34		71		26		30		12		19		33		130		9		646		80		93		91		106		105		33		109		114		123		
	Totals—Examined—Passed			4		21		59		23		25		11		15		29		114		6		582		80		86		80		95		89		32		92		93		123		
	Totals—Examined—Failed			1		13		12		3		5		1		4		4		16		3		64		0		7		11		11		16		1		17		21		0		
	Percentage of Failures			20.0		38.2		16.9		11.5		16.7		8.3		21.1		11.8		12.3		33.3		9.9		0.		7.5		12.1		10.4		15.2		3.0		15.6		18.4		0.		
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		

R—Regular; H—Homeopathic; E—Eclectic; Ph.M—Physiomedical; P—Panpathic.
*One report not complete. † Now the Los Angeles Medical Department of the University of California.

Margin Number	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	Totals:	Examined—	Passed	Failed	Percentage of Failures	No. States Ex. in	Margin Number
	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming							
	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F							
67			3 0																										3	3	0	0.	1		67
68	0 1		30 12		1 1																1 0								80	62	18	22.5	9		68
69			7 3		6 1									1 0															22	23	9	28.1	5		69
70			1 2	0 1																									17	12	5	29.4	5		70
71			34 0	0 0	1								1 1														1 0		67	65	2	3.0	6		71
72			15 8										1 1			1 0				1 1	1 0								75	51	24	32.0	8		72
73			2 0		1 0																								6	6	0	0.	4		73
74			32 9																						1 0				58	49	9	15.5	5		74
75																													5	4	1	20.0	1		75
76			41 2																0 1	1 0									74	70	4	5.4	4		76
77																									2 0		1 0	1 0	29	29	0	0.	5		77
78					24 0																								8	8	0	0.	1		78
79					8 0																								9	9	0	0.	1		79
80					9 0			2 0		1 0																			6	6	0	0.	4		80
81										23 2				1 0															28	26	2	7.1	4		81
82	1 0							1 0		37 1	1 0										1 0						1 0		46	41	5	5.2	8		82
83								2 0		40 0							1 0												46	46	0	0.	1		83
84										7 1																			9	8	1	11.1	2		84
85										10 0																			10	10	0	0.	1		85
86										41 5																			47	42	5	10.6	2		86
87										10 1						1 0													12	11	1	8.3	2		87
88										4 0																			4	4	0	0.	1		88
89										29 1																			30	29	1	3.2	1		89
90										52 0																			53	53	0	0.	2		90
91										19 0						2 0													21	21	0	0.	2		91
92		0 1									2 3			0 1		2 1		0 1						4 0		1 0			36	23	7	23.3	10		92
93											12 0							2 0			0 1								20	19	1	5.0	5		93
94											12 1																		13	12	1	7.7	1		94
95													16 0																16	16	0	0.	1		95
96													7 0			1 0													8	8	0	0.	2		96
97													4 1			3 0										3 1			13	11	2	15.4	4		97
98													28 1								1 0								30	30	0	0.	3		98
99													14 4																20	16	4	20.0	2		99
100													4 0																6	6	0	0.	2		100
101													47 3														1 0		51	48	3	5.9	2		101
102													5 1																6	5	1	16.7	1		102
103										1 0			24 0				3 0												28	28	0	0.	3		103
104														2 0															2	2	0	0.	1		104
105					1 0										4 3										1 0				9	6	3	33.3	3		105
106															10 2										1 0				14	12	2	14.3	3		106
107	1 0							3 0		1 2	8 0	2 0	3 0	0 0	1 0		39 0					1 0				3 0	1 0			53	50	3	5.7	9		107
108	4 3	1 0		2 0	1 0			8 0					2 0				69 1	1 0							1 1				123	117	6	4.9	23		108
109								3 0		1 0	4 0		2 0				64 1							1 0		2 0				77	75	2	2.6	8		109
110																	18 0												23	23	0	0.	3		110
111								7 0		3 0			2 0				69 0							1 0	2 0		1 0			101	100	1	1.0	11		111
112																	49 3												56	53	3	5.4	3		112
113								1 0									13 0												15	15	0	0.	2		113
114																		24 10											36	25	11	30.6	2		114
115		1 0																		11 0	1 0					1 2			17	14	3	17.7	4		115
116		0 1																		4 0	1 0								7	5	2	28.6	4		116
117		0 1									0 1									5 0									7	5	2	28.6	3		117
118		18 9	1 1												0 1					25 0	4 1			0 2					89	68	21	23.6	8		118
119		0 7	3 2											1 0						19 0	3 1								69	43	26	37.7	11		119
120																				13 0	2 0					1 0			14	14	0	0.	1		120
121		0 1	0 1											2 1				2 1		22 0	2 1			1 0		1 0			47	42	5	10.6	5		121
122		1 2			1 0															6 0	3 0								21	19	2	9.5	2		122
123																				3 0									6	3	3	50.0	4		123
124		3 0	1 0											1 0				1 0		14 0	7 1								34	31	3	8.8	11		124
125																					13 0								13	13	0	0.	1		125
126																					12 0								12	12	0	0.	1		126
127																					6 1								7	6	1	14.3	1		127
128														1 0							33 0									34	34	0	0.	2		128
129							0 1	1 0								1 0							15 0							24	23	1	4.2	6		129
130											3 0													29 1		3 0				36	35	1	2.8	3		130
131														1 0										7 1		2 0				12	11	1	8.3	4		131
132											12 0													32 1		1 0				48	46	2	4.2	5		132
133												1 0													1 0		10 6			19	13	6	31.6	4		133
134												2 0															12 1			16	15	1	6.3	3		134
135	0 1				1 1			1 0	2 0		3 0			1 0			1 0	0 1											20	15	5	25.0	13		135
136				2 2								0 1												1 2	0 1					8	6	2	33.3	13		136
137						9 0													1 1		2 0	0 1						1 0	41	30	11	26.9	15		137
	76	74	221	13	67	2	8	35	.....	302	89	11	178	29	26	396	12	52	15	132	124	15	16	113	21	68	43	4	4011	.....	.....	.....	.....	.....	
	61	41	180	10	64	2	7	34	.....	288	83	11	160	22	20	388	8	37	13	132	116	13	16	95	17	62	34	4	.....	3586	.....	.....	.....	.....	
	15	33	41	3	3	0	1	1	.....	14	6	0	9	7	6	8	4	15	2	0	8	2	0	18	4	6	9	0	.....	.....	425	.....	.....	.....	
	19.7	44.6	18.6	23.1	4.5	0.	12.5	2.9	.....	4.6	6.7	0.	5.1	24.1	23.1	2.0	33.3	28.9	13.3	0.	6.5	13.3	0.	15.9	19.0	8.8	21.0	0.	.....	.....	.....	10.6	.....	.....	
	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49							

Margin Number	NAME OF COLLEGE	1 Alabama*		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 District of Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		Margin Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	ALABAMA																																										
1	Birmingham Medical College.—R																																										1
2	University of Alabama, Medical Department.—R																	4	0	2	0																							2
	ARKANSAS																																										
3	College of Physicians and Surgeons.—R					1	0																											2	1							3
4	University of Arkansas, Medical Dept.—R					3	5																	0	1									2	2							4
	CALIFORNIA																																									
5	California Eclectic Medical College.—E							1	1																																	5
6	College of P. and S., Los Angeles.—R			1	0			4	2																																	6
7	College of P. and S., San Francisco.—R							13	6																																	7
8	Cooper Medical College.—R							24	2																																	8
9	Hahnemann Medical College of Pacific.—H							7	5																																	9
10	Oakland College of Medicine and Surgery.—R							3	0																																	10
11	University of California, Medical Dept.—R							9	0																																	11
12	University of Southern California.†—R							25	6																															1	0	12
	COLORADO																																										
13	Denver and Gross College of Medicine.—R							2	0	18	1													1	0																			13
14	University of Colorado, Medical Dept.—R							1	0	5	0											3	0																					14
	CONNECTICUT																																									
15	Yale Medical School.—R							1	0			8	1											1	0															3	0			15
	DISTRICT OF COLUMBIA																																										
16	George Washington Univ., Dept. of Med.—R															20	9	1	0	1	0			2	0			2	0	1	0					4	1					16
17	Georgetown University, School of Medicine.—R			1	0							2	1			22	1																	1	0			3	0			17
18	Howard University, Medical Department.—R					2	0									8	6							1	0					1	0					6	1	3	3			18
	GEORGIA																																									
19	Atlanta College of Physicians and Surgeons.—R																	3	1	30	4																					19
20	Atlanta School of Medicine.—R																	12	1	43	5																					20
21	Georgia College of Eclectic M. and S.—E																																									21
22	Hospital Medical College, Atlanta.—E																																									22
23	Medical College of Georgia.—R					0	3											2	0	19	3													0	1			0	1			23
	ILLINOIS																																										
24	American Medical Missionary College.—R																																							7	0	24
25	Bennett Medical College.—R			1	0	1	0			0	1											0	1	29	9					0	1	1	0									25
26	Chicago College of Medicine and Surgery.—R																	2	0			1	0	81	7	1	0	0	2													26
27	College of Medicine and Surgery.—Ph.M																							4	5																			27
28	College of Physicians and Surgeons.—R							3	1							1	0			1	0	1	0	91	6	1	0	4	0	2	1	1	0							1	0	28
29	Hahnemann Medical College and Hospital.—H					1	0					0	2									0	1	16	5			3	0	2	0							2	0	1	0	29
30	Hering Medical College.—H																							6	0	1	0															30
31	Illinois Medical College.—R					1	0																	22	7	2	0															31
32	Jenner Medical College.—R																							17	10	0	1															32
33	National Medical University.—P	0	1																					8	6	1	0															33
34	Northwestern University Medical School.—R							4	0													1	1	121	2	3	0	5	0	1	0	1	0							2	0	34
35	Reliance Medical College.—R																							14	6																			35
36	Rush Medical College.—R							5	0	1	0											2	0	66	0			2	0											1	0	36
	INDIANA																																										
37	Indiana University, School of Medicine.—R																									55	0			1	0													37
	IOWA																																									
38	Drake University, College of Medicine.—R																							0	1			18	2													38
39	State University of Iowa, College of Med.—R																					3	0	1	0			43	2													39
40	State University of Iowa, Homeo. Dept.—H					1	0																					3	0													40
	KANSAS																																										
41	Kansas Medical College.—R																													20	1											41
42	University of Kansas, School of Medicine.—R							1	0													0	1							9	0											42
	KENTUCKY																																										
43	Louisville National Medical College.—R																																										43
44	Southwestern Homeopathic Medical College.—H																															1	0									44
45	University of Louisville, Medical Dept.—R			1	0	3	0	1	0	0	1							2	0	1	0			8	3	15	1			4	2	20	14	2	1					3	1	45
	LOUISIANA																																										
46	Flint Medical College.—R																																	2	2							46
47	Tulane University, Medical Department.—R					2	0	1	0									3	0											1	0			55	1							47
	MAINE																																									
48	Medical School of Maine.—R																																			18	1			8	0	48
	MARYLAND																																									
49	Atlantic Medical College.—P											0	1	2	0	1	0																			3	1					49
50	Baltimore Medical College.—R							1	1	1	1	3	1	1	0	1	1			2	0															2	2	13	7	16	14			50
51	College of Physicians and Surgeons.—R											2	0			0	1	1	0	1	0	1	0													13	0	4	1			51
52	Johns Hopkins University, Medical Dept.—R							2	0	2	0	1	0			1	0			1	0			3	0	2	0	2	0							18	0	1	0			52
53	Maryland Medical College.—R									0	1	1	1	0	1	0	1			1	0			1	0											5	0	8	11	0	2			53
54	University of Maryland, School of Medicine.—R							0	1					2	0	1	0	1	0	3	0							2	0							40	4					54
55	Woman's Medical College of Baltimore.—R																																					2	3					55
	MASSACHUSETTS																																									
56	Boston University School of Medicine.—H											0	1																							2	0			14	1			56
57	College of Physicians and Surgeons.—R																			1	0															4	2			4	11			57
58	Harvard Medical School.—R							2	0																											1	0			38	1			58
59	Tufts College Medical School.—R							1	1																											6	0			53	8			59
	MICHIGAN																																										
60	Detroit College of Medicine.—R																					3	0																	36	0			60
61	Detroit Homeopathic College.—H																																							5	0			61
62	Univ. of Michigan, Dept. of Med. and Surg.—R	1	0	1	1													1	0							1	0									1	0			62	0			62
63	University of Michigan, Homeo. College.—H							1	1																															15	1			63
	MINNESOTA																																										
64	University of Minnesota, Coll. of M. and S.—R							1	1													1	0																	0	1			64
65	Hamline University, Medical Department.—R																																										65
	MISSISSIPPI																																										
66	Mississippi Medical College.—R																	1	0																									66
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		

R—Regular; H—Homeopathic; E—Eclectic; Ph.M—Physiomedical; P—Panpathic.
* One report not complete. † Now the Los Angeles Medical Department of the University of California.

| Margin Number | 22 Minnesota | | 23 Mississippi | | 24 Missouri | | 25 Montana | | 26 Nebraska | | 27 Nevada | | 28 New Hampshire | | 29 New Jersey | | 30 New Mexico | | 31 New York | | 32 North Carolina | | 33 North Dakota | | 34 Ohio | | 35 Oklahoma | | 36 Oregon | | 37 Pennsylvania | | 38 Rhode Island | | 39 South Carolina | | 40 South Dakota | | 41 Tennessee | | 42 Texas | | 43 Utah | | 44 Vermont | | 45 Virginia | | 46 Washington | | 47 West Virginia | | 48 Wisconsin | | 49 Wyoming | | Totals: | Examined—Passed | Examined—Failed | Percentage of Failures | No. States Ex. In | Margin Number |
|---|---|---

Margin Number	NAME OF COLLEGE	1 Alabama*		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 District of Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		Margin Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	MISSOURI																																									
67	American Medical College.—E																					2	0	26	9																	67
68	Barnes Medical College.—R					2	1	1	0	0	1											1	0																			68
69	Ensworth Medical College.—R					1	0			0	1											1	0							12	7											69
70	Kansas City Hahnemann Medical College.—H					1	0															0	1			1	0			10	1											70
71	St. Louis University, School of Medicine.—R					1	0															1	2	28	0					1	0											71
72	St. Louis Coll. of Physicians and Surgeons.—R					0	1	1	0															30	18	1	1	2	2	1	1											72
73	University of Missouri, Medical Department.—R																					*		1	0			1	0													73
74	University Medical College, Kansas City.—R					1	0	1	0	0	1																	1	0	27	1											74
75	Western Eclectic College of Med. and Surg.—E																													4	1											75
76	Washington University, Medical Department.—R							1	0															30	1	1	0															76
	NEBRASKA																																								
77	John A. Creighton Medical College.—R																					1	0					1	0	2	0											77
78	Lincoln Medical College.—E									0	1																			0	1											78
79	University of Nebraska, College of Medicine.—R																																									79
	NEW HAMPSHIRE																																									
80	Dartmouth Medical School.—R																																	1	0			2	0			80
	NEW YORK																																									
81	Albany Medical Colige.—R													1	0																							1	0			81
82	Columbia University College of P. and S.—R							1	0			3	0							1	0			1	0													2	1			82
83	Cornell University Medical College.—R							2	0			1	0			1	0																					2	0			83
84	Eclectic Med. College of City of New York.—E											1	0																													84
85	Fordham University, School of Medicine.—R																																									85
86	Long Island College Hospital.—R											3	0																									1	0			86
87	New York Homeo. Med. Coll. and Hosp.—H							1	1			3	0																													87
88	New York Med. Coll. and Hosp. for Women.—H																																									88
89	Syracuse University, College of Medicine.—R											1	0			1	0																					1	0			89
90	University and Bellevue Hospital Med. Coll.—R	1	0									2	0													1	0											1	0			90
91	University of Buffalo, Medical Department.—R																																										91
	NORTH CAROLINA																																										
92	Leonard School of Medicine.—R	0	1															5	0	5	2															1	0	0	1			92
93	North Carolina Medical College.—R																	4	0	2	1																					93
94	University of North Carolina, Med. Dept.—R																					1	0																			94
	OHIO																																									
95	Cleveland Coll. of Physicians and Surgeons.—R																																										95
96	Cleveland Homeopathic Medical College.—H																																									96
97	Eclectic Medical College.—E																															1	0							1	0	97
98	Medical College of Ohio.—R																					1	0									2	0									98
99	Miami Medical College.—R																															2	0									99
100	Pulte Medical College.—H																															2	0									100
101	Starling-Ohio Medical College.—R																																									101
102	Toledo Medical College.—R																																									102
103	Western Reserve University, Medical Dept.—R																																									103
	OKLAHOMA																																									
104	Epworth College of Medicine.—R																																										104
	OREGON																																									
105	Willamette University, Medical Department.—R																																									105
106	University of Oregon, Medical Department.—R									0	1											1	0																			106
	PENNSYLVANIA																																									
107	Hahnemann Medical College and Hospital.—H							0	1			1	0	2	0	1	0																	1	0			2	1			107
108	Jefferson Medical College.—R							1	0			1	1	3	0					2	0	1	0	1	0	1	0	1	0			1	0			1	0	4	0			108
109	Medico-Chirurgical College of Philadelphia.—R											1	0	1	1																					1	0	1	0			109
110	Temple University, Medical Department.—R																																			1	0					110
111	University of Pennsylvania, Dept. of Med.—R	1	0					2	0			1	0	5	0			1	0					1	0	1	0									13	1	2	0			111
112	Western Pennsylvania Medical College.—R											0	1															1	0													112
113	Woman's Medical College of Pennsylvania.—R							1	0							1	0																					1	0			113
	SOUTH CAROLINA																																									
114	Med. College of the State of South Carolina.—R			1	0													1	1																							114
	TENNESSEE																																									
115	Chattanooga Medical College.—R			0	1																	1	1																			115
116	College of Physicians and Surgs., Memphis.—R					0	1															0	2																			116
117	Knoxville Medical College.—R																					1	0																			117
118	Memphis Hospital Medical College.—R					2	1															1	0											21	10							118
119	Meharry Medical College.—R	0	1			5	11			0	2							1	2	10	6			2	3			2	1	1	2	1	6									119
120	Tennessee Medical College.—R																					0	1																			120
121	University of Nashville, Medical Dept.—R	0	1	1	0	2	0											1	0					4	0							2	0	8	1							121
122	University of Tennessee, Dept. of Medicine.—R					4	0															1	0									0	1	5	0							122
123	University of West Tennessee, Med. Dept.—R					0	2											0	1	0	2																					123
124	Vanderbilt University, Medical Department.—R					1	0	0	1													1	0																			124
	TEXAS																																									
125	Baylor University, College of Medicine.—R																																										125
126	Fort Worth University, Medical Dept.—R																																										126
127	Southwestern University Medical College.—R																																										127
128	University of Texas, Dept. of Medicine.—R																																											128
	VERMONT																																										
129	University of Vermont, College of Medicine.—R							1	2			3	0																									8	0			129
	VIRGINIA																																										
130	Medical College of Virginia.—R																																							1	0			130
131	University of Virginia, Dept. of Medicine.—R					1	0											1	0													1	0			1	0					131
132	University College of Medicine.—R																			1	0															0	1	0	2			132
	WISCONSIN																																										
133	Marquette University, Medical Department.—R																											1	0													133
134	Wisconsin College of Physicians and Surgs.—R																											1	0													134
135	Canadian Colleges							4	0	2	0	1	0								2	0	4	0		1	0							1	1	1	0	7	4			135
136	Foreign Colleges							2	1			1	1					1	0					1	1													1	1			136
137	Miscellaneous Medical Colleges	0	2			2	0			5	2							2	2	2	1			2	1	5	0	3	2	4	0	5	1	5	0	1	0	3	3	0	1	137
	Totals by States	9		10		64		167		47		51		19		58		58		161		38		726		99		106		126		131		132		54		158		236		137
	Totals—Examined—Passed	8		8		37		132		34		40		17		39		50		134		26		624		96		96		108		113		107		47		126		182		135
	Totals—Examined—Failed	6		2		27		35		13		11		2		19		8		27		12		102		3		10		18		18		25		7		32		54		2
	Percentage of Failures	66.7		20.0		42.2		21.0		27.7		21.6		10.5		32.8		13.8		16.8		31.6		14.0		3.0		9.4		14.3		13.7		18.9		13.0		20.3		22.8		1.5
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21	

R—Regular; H—Homeopathic; E—Eclectic; Ph.M—Physiomedical; P—Panpathic.
*One report not complete. †Now the Los Angeles Medical Department of the University of California.

Margin Number	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	Totals:	Examined—Passed	Examined—Failed	Percentage of Failures	No. States Ex. In	Margin Number
	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming						
	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
67			3 0																		1 0								4	4	0	0.	2	67
68	0 1		31 14		1 1								1 0	0 1				0 2			1 0								103	69	34	33.0	14	68
69			7 3		6 1								1 0																42	28	14	33.3	8	69
70			1 2	0 1									0 1	0															20	14	6	30.0	8	70
71	1 1		40 1	0 1						1 0			3 0	1															88	79	9	10.2	12	71
72	0	1 16	14										1 1	2 1	1 0			0 1			1 3	1 0				1 0			101	57	44	43.6	14	72
73		3 0			1 0																								6	6	0	0.	4	73
74		26 12	1 1		1 0								1 0		1 0									1 0					76	61	15	19.7	11	74
75																													5	4	1	20.0	1	75
76		43 3																	0 1	1 0				1 0					82	77	5	6.1	7	76
77	1 0		1 0	1 0	26 1									1 0					3 0					6 0		1 0	1 0	46	45	1	2.2	12	77
78			0 1		8 0																								11	8	3	27.3	4	78
79					9 0																			1 0					10	10	0	0.	2	79
80							5 1			1 0							1 0												11	10	1	9.1	5	80
81										31 3				1 0															37	34	3	8.1	4	81
82	1 0	1 0	1 0	0 1						78 2	1 0					2 0		1 0		1 0	1 0				1 0		1 0		103	99	4	3.9	18	82
83								2 0		55 0							2 0												66	66	0	0.	7	83
84										10 1																			12	11	1	8.3	2	84
85										10 0																			10	10	0	0.	1	85
86										82 9													1 0						96	87	9	9.4	4	86
87								1 0		11 1						2 0													20	18	2	10.0	5	87
88										4 0																			4	4	0	0.	1	88
89										33 1			1 0			1 0													39	38	1	2.6	6	89
90							1 0	1 0		77 1																			86	85	1	1.2	8	90
91										29 0						2 0													31	31	0	0.	2	91
92		0 1									10 3			0 1		2 1		0 4						6 2		2 0			47	31	16	34.0	12	92
93											14 0			1 0				2 0			0 1								25	23	2	8.0	6	93
94											12 1				0 1					2 0									17	15	2	11.8	4	94
95										1 0			16 0			1 0				1 0									19	19	0	0.	4	95
96													7 0	1 0		1 0													10	10	0	0.	4	96
97													4 0			3 0										3 1			14	12	2	14.3	5	97
98													28 0									1 0							32	32	0	0.	4	98
99													14 4		2 0														22	18	4	18.2	3	99
100													14 0																6	6	0	0.	2	100
101													47 3		1 0	0 1										1 0			53	49	4	7.5	4	101
102													6 1																6	5	1	16.7	1	102
103										2 0			25 0			3 0													30	30	0	0.	3	103
104														3 0															3	3	0	0.	1	104
105				1 0		1 0									11 7									6 0					26	19	7	26.9	4	105
106															16 6									3 0					27	20	7	25.9	4	106
107	1 0	0 1						6 1		2 3			3 0	1 0		39 2			0 1										70	60	10	14.3	15	107
108	4 3	1 0	1 0	2 1	2 0			14 0		9 1	8 0	2 0	5 0	1 0		0 1	1 0	1 0		1 0	4 0	1 0	1 0	5 1	3 0	1 0	1 0		173	165	8	4.6	33	108
109								6 0		2 0			2 0		1 0	68 1								1 0		3 0			89	87	2	2.2	11	109
110																19 1										1 0			22	21	1	4.5	3	110
111		1 0	1 0					12 0		8 0	4 0		2 0		1 0	73 0			1 0	1 0				2 0	3 0		1 0		138	127	11	9.7	22	111
112										1 0						57 6										8 0			74	67	7	9.5	5	112
113				1 0				1 0		2 1					1 0	15 0								1 0					25	24	1	4.0	9	113
114																		24 13											40	26	14	35.0	3	114
115		1 0									0 2								19 0	1 0				1 3		1 2			33	24	9	27.3	8	115
116		1 2																	5 0	1 0									11	8	3	27.3	5	116
117		0 1									0 2			2 2					6 0										15	8	7	46.7	5	117
118		19 13	1 1							1 1					0 1				28 0	5 1				0 2					108	78	30	27.8	10	118
119		1 15	4 6								0 1		0 1	3 1				2 3	28 0	5 3									126	65	64	49.5	17	119
120											1 0			0 1					17 0							1 1			22	19	3	13.6	5	120
121		3 4	0 1							1 0	0 2			3 1		0 3		2 1	26 0	3 1				1 0		1 0			70	58	12	17.1	17	121
122		2 2			1 0						2 1								9 0	3 0									31	27	4	12.9	9	122
123														1 0					6 0										12	7	5	41.7	5	123
124		3 1	1 0					1 0						3 0				1 0	14 0	7 1					0 1				41	36	5	12.2	14	124
125																				13 0									13	13	0	0.	1	125
126																				12 0									12	12	0	0.	1	126
127																				8 1									9	8	1	11.1	1	127
128														2 0						35 0									37	37	0	0.	2	128
129							0 3	1 0							1 0	1 0							19 0			1 0			40	35	5	12.5	9	129
130											3 0							1 0						3 1		3 0			42	39	3	7.1	5	130
131		1 1									1 0			1 0										1 3		3 0	1 0		27	23	4	14.8	9	131
132											1 0													3 1		1 0			54	50	4	7.4	6	132
133				1 1						1 0		1 0			1 0										1 0		14 9		30	20	10	33.3	7	133
134				1 0								3 0													1 0		13 1		20	19	1	5.0	5	134
135	2 1			4 1			1 0	3 0		15 0		1 0	4 0		1 0	1 0	2 2		1 0				2 1		8 0		2 0		80	70	10	12.5	23	135
136							0 1	2 2		8 9						3 0	0 1												37	19	18	48.6	11	136
137	2 0	3 1	2 2	0 1	2 2	1 0			0 1		0 2	0 2	1 0	4 3		1 1		0 1	2 5	7 0	6 0	0 1		3 6	2 3	1 0		1 0	130	84	46	35.4	33	137
	108	122	273	48	76	8	23	72	6	565	110	30	197	83	88	476	28	78	61	191	150	30	30	161	112	109	61	8	5891					
	86	60	206	39	70	8	15	65	4	524	96	27	186	64	61	455	19	46	46	191	138	26	29	126	88	99	49	8	4985					
	22	62	67	9	6	0	8	7	2	41	14	3	11	19	27	21	9	32	15	0	12	4	1	35	24	10	12	0	906					
	20.4	50.8	24.5	18.7	7.9	0.	34.8	9.7	33.3	7.2	12.7	10.0	5.6	22.9	30.7	4.4	32.1	41.0	24.6	0.	8.0	13.3	3.3	21.7	21.4	9.2	19.7	0.				15.4		
	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49						

Margin Number	NAME OF COLLEGE	1 Alabama*	2 Arizona	3 Arkansas	4 California	5 Colorado	6 Connecticut	7 Delaware	8 District of Columbia	9 Florida	10 Georgia	11 Idaho	12 Illinois	13 Indiana	14 Iowa	15 Kansas	16 Kentucky	17 Louisiana	18 Maine	19 Maryland	20 Massachusetts	21 Michigan	Margin Number
		P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	
	ALABAMA																						
1	Birmingham Medical College.—R																						1
2	University of Alabama, Medical Department.—R	1 0		1 0									1 0										2
	ARKANSAS																						
3	College of Physicians and Surgeons.—R																				1		3
4	University of Arkansas, Medical Dept.—R			1 0																			4
	CALIFORNIA																						
5	California Eclectic Medical College.—E																						5
6	College of P. and S., Los Angeles.—R																						6
7	College of P. and S., San Francisco.—R				2 2																		7
8	Cooper Medical College.—R				0 1																		8
9	Hahnemann Medical College of Pacific.—H				1 0																		9
10	Oakland College of Medicine and Surgery.—R																						10
11	University of California, Medical Dept.—R																						11
12	University of Southern California.†—R				1 0																		12
	COLORADO																						
13	Denver and Gross College of Medicine.—R				1 0											1 0							13
14	University of Colorado, Medical Dept.—R											0 1											14
	CONNECTICUT																						
15	Yale Medical School.—R				1 0						1 0												15
	DISTRICT OF COLUMBIA																						
16	George Washington Univ., Dept. of Med.—R								1 0														16
17	Georgetown University, School of Medicine.—R								1 1														17
18	Howard University, Medical Department.—R						0 1		1 1												2 0		18
	GEORGIA																						
19	Atlanta College of Physicians and Surgeons.—R		1 0								1 0												19
20	Atlanta School of Medicine.—R																				1		20
21	Georgia College of Eclectic M. and S.—E																						21
22	Hospital Medical College, Atlanta.—E																						22
23	Medical College of Georgia.—R				1 1																		23
	ILLINOIS																						
24	American Medical Missionary College.—R				1 0																		24
25	Bennett Medical College.—R													1 0		1 0							25
26	Chicago College of Medicine and Surgery.—R					0 1																1	26
27	College of Medicine and Surgery.—Ph.M																						27
28	College of Physicians and Surgeons.—R				1 2						1 0		1 0	2 1	1 0								28
29	Hahnemann Medical College and Hospital.—H				4 3									0 1									29
30	Hering Medical College.—H																						30
31	Illinois Medical College.—R																						31
32	Jenner Medical College.—R																						32
33	National Medical University.—P																						33
34	Northwestern University Medical School.—R		1 0		3 1							2 1	1 1			1 0							34
35	Reliance Medical College.—R																						35
36	Rush Medical College.—R			1 0	1 3							5 0	1 0		0 1	1 0							36
	INDIANA																						
37	Indiana University, School of Medicine.—R																						37
	IOWA																						
38	Drake University, College of Medicine.—R																						38
39	State University of Iowa, College of Med.—R			1 0	3 2																		39
40	State University of Iowa, Homeo. Dept.—H																						40
	KANSAS																						
41	Kansas Medical College.—R						1 0											1 0					41
42	University of Kansas, School of Medicine.—R																						42
	KENTUCKY																						
43	Louisville National Medical College.—R																1 0						43
44	Southwestern Homeopathic Medical College.—H													1 0									44
45	University of Louisville, Medical Dept.—R		1 0	0 1	1 3		1 0				0 1		1 1				2 0	1 0					45
	LOUISIANA																						
46	Flint Medical College.—R			1 1																			46
47	Tulane University, Medical Department.—R			3 0									1 0					2 0					47
	MAINE																						
48	Medical School of Maine.—R																		1 0				48
	MARYLAND																						
49	Atlantic Medical College.—P																						49
50	Baltimore Medical College.—R																				0 1		50
51	College of Physicians and Surgeons.—R		2 0								2 0									1 0			51
52	Johns Hopkins University, Medical Dept.—R																			2 0	1 0		52
53	Maryland Medical College.—R			1 0							1 0								1 1				53
54	University of Maryland, School of Medicine.—R				1 1	1 0					0												54
55	Woman's Medical College of Baltimore.—R																						55
	MASSACHUSETTS																						
56	Boston University School of Medicine.—H	0 1			1 0														1 0		1 0		56
57	College of Physicians and Surgeons.—R																		1 1		1 0		57
58	Harvard Medical School.—R				5 1	3 0													1 0				58
59	Tufts College Medical School.—R					1 0															2 0		59
	MICHIGAN																						
60	Detroit College of Medicine.—R											1 0											60
61	Detroit Homeopathic College.—H																						61
62	Univ. of Michigan, Dept. of Med. and Surg.—R		1 0		2 4	1 0			2 0			2 0								1 0		1 0	62
63	University of Michigan, Homeo. College.—H				0 1											1 0						1 0	63
	MINNESOTA																						
64	University of Minnesota, Coll. of M. and S.—R				2 0							1 0											64
65	Hamline University, Medical Department.—R																						65
	MISSISSIPPI																						
66	Mississippi Medical College.—R																						66
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	

R—Regular; H—Homeopathic; E—Eclectic; Ph.M—Physiomedical; P—Panpathic.
* One report not complete. † Now the Los Angeles Medical Department of the University of California.

| Margin Number | 22 Minnesota | | 23 Mississippi | | 24 Missouri | | 25 Montana | | 26 Nebraska | | 27 Nevada | | 28 New Hampshire | | 29 New Jersey | | 30 New Mexico | | 31 New York | | 32 North Carolina | | 33 North Dakota | | 34 Ohio | | 35 Oklahoma | | 36 Oregon | | 37 Pennsylvania | | 38 Rhode Island | | 39 South Carolina | | 40 South Dakota | | 41 Tennessee | | 42 Texas | | 43 Utah | | 44 Vermont | | 45 Virginia | | 46 Washington | | 47 West Virginia | | 48 Wisconsin | | 49 Wyoming | | Totals: | | Examined—Passed | Examined—Failed | Percentage of Failures | No. States Ex. in | Margin Number |
|---|---|---

Margin Number	NAME OF COLLEGE	1 Alabama*		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 District of Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		Margin Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	MISSOURI																																										
67	American Medical College.—E																					0	1																					67
68	Barnes Medical College.—R																	1	1			2	1																					68
69	Ensworth Medical College.—R																															0	1											69
70	Kansas City Hahnemann Medical College.—H																																										70
71	St. Louis University, School of Medicine.—R																					1	0																					71
72	St. Louis Coll. of Physicians and Surgeons.—R									0	1															1	0																	72
73	University of Missouri, Medical Department.—R																																									73
74	University Medical College, Kansas City.—R																					1	0	0	1							2	0									74
75	Western Eclectic College of Med. and Surg.—E																																									75
76	Washington University, Medical Department.—R							1	1																					1	0											76
	NEBRASKA																																										
77	John A. Creighton Medical College.—R							1	1																																	77
78	Lincoln Medical College.—E																	1	0																							78
79	University of Nebraska, College of Medicine.—R																																									79
	NEW HAMPSHIRE																																									
80	Dartmouth Medical School.—R							1	0																													1	1			80
	NEW YORK																																									
81	Albany Medical Colige.—R																																					0	1			81
82	Columbia University College of P. and S.—R																																					2	0			82
83	Cornell University Medical College.—R											3	0																													83
84	Eclectic Med. College of City of New York.—E																																									84
85	Fordham University, School of Medicine.—R																																									85
86	Long Island College Hospital.—R																					0	1																	0	1	1	0	86
87	New York Homoeo. Med. Coll. and Hosp.—H											1	0																	1	0									1	0			87
88	New York Med. Coll. and Hosp. for Women.—H																																									88
89	Syracuse University, College of Medicine.—R																																										89
90	University and Bellevue Hospital Med. Coll.—R																	1	0			1	0																					90
91	University of Buffalo, Medical Department.—R							1	0																																	91
	NORTH CAROLINA																																									
92	Leonard School of Medicine.—R																																										92
93	North Carolina Medical College.—R																																									93
94	University of North Carolina, Med. Dept.—R																																									94
	OHIO																																										
95	Cleveland Coll. of Physicians and Surgeons.—R																																									95
96	Cleveland Homeopathic Medical College.—H																																										96
97	Eclectic Medical College.—E																					1	1	1	0																	97
98	Medical College of Ohio.—R			1	0													2	0			2	0	1	0																	98
99	Miami Medical College.—R																																										99
100	Pulte Medical College.—H																																										100
101	Starling-Ohio Medical College.—R									1	0									1	0			1	0							1	0									101
102	Toledo Medical College.—R																																									102
103	Western Reserve University, Medical Dept.—R			1	1																																					103
	OKLAHOMA																																										
104	Epworth College of Medicine.—R																																									104
	OREGON																																										
105	Willamette University, Medical Department.—R			0	1																																					105
106	University of Oregon, Medical Department.—R																																									106
	PENNSYLVANIA																																										
107	Hahnemann Medical College and Hospital.—H							1	0					1	0															1	0											107
108	Jefferson Medical College.—R			1	1			3	5							1	0	2	0					1	0											1	0	2	0	1	0	108
109	Medico-Chirurgical College of Philadelphia.—R							1	1																																	109
110	Temple University, Medical Department.—R																					1	0																			110
111	University of Pennsylvania, Dept. of Med.—R							1	0							1	1									1	0											1	0			111
112	Western Pennsylvania Medical College.—R																																					1	0			112
113	Woman's Medical College of Pennsylvania.—R																													1	0							2	0			113
	SOUTH CAROLINA																																										
114	Med. College of the State of South Carolina.—R																			1	0			0	1																	114
	TENNESSEE																																										
115	Chattanooga Medical College.—R																	1	0	2	0	1	1																			115
116	College of Physicians and Surgs., Memphis.—R																																										116
117	Knoxville Medical College.—R																															0	1									117
118	Memphis Hospital Medical College.—R					3	0													1	0													3	3							118
119	Meharry Medical College.—R					0	1											1	0	1	1																					119
120	Tennessee Medical College.—R																																										120
121	University of Nashville, Medical Dept.—R					1	0															0	1	1	0																	121
122	University of Tennessee, Dept. of Medicine.—R					1	0											1	0					0	1																	122
123	University of West Tennessee, Med. Dept.—R																																										123
124	Vanderbilt University, Medical Department.—R	1	0			2	0																											1	0							124
	TEXAS																																										
125	Baylor University, College of Medicine.—R																																									125
126	Fort Worth University, Medical Dept.—R					1	0																																			126
127	Southwestern University Medical College.—R																																									127
128	University of Texas, Dept. of Medicine.—R																																										128
	VERMONT																																										
129	University of Vermont, College of Medicine.—R							1	0			0	1					0	1																			2	1			129
	VIRGINIA																																										
130	Medical College of Virginia.—R																																										130
131	University of Virginia, Dept. of Medicine.—R																																										131
132	University College of Medicine.—R																																									132
	WISCONSIN																																										
133	Marquette University, Medical Department.—R																																										133
134	Wisconsin College of Physicians and Surgs.—R																																									134
135	Canadian Colleges					1	0	1	0			1	0			1	0	1	0			1	0	2	1													2	1			135
136	Foreign Colleges							1	1															4	2													5	2	1	0	136
137	Miscellaneous Medical Colleges		2	1	4	0	6	4		1	0	1	0			3	1	2	0	4	3	4	5	1	0	0	3	2	0	2	0	4	2	2	0	0	1	1	2			137
	Totals by States		3		15		25		90		4		14		2		9		24		10		39		30		6		6		15		7		22		11		5		30		5	
	Totals—Examined—Passed		2		11		22		82		2		12		2		7		20		9		28		21		6		2		13		7		14		8		4		26		5	*
	Totals—Examined—Failed		1		4		3		8		2		2		0		2		4		1		11		15		0		4		2		0		8		8		1		10		0	
	Percentage of Failures		66.7		73.3		12.0		42.2		50.0		14.3		0.		22.2		16.7		10.0		28.3		41.7		0.		66.7		13.3		0.		36.4		27.3		20.0		27.8		0.	
			1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21	

R—Regular; H—Homeopathic; E—Eclectic; Ph.M—Physiomedical; P—Panpathic.
* One report not complete. † Now the Los Angeles Medical Department of the University of California.

| Margin Number | 22 Minnesota | | 23 Mississippi | | 24 Missouri | | 25 Montana | | 26 Nebraska | | 27 Nevada | | 28 New Hampshire | | 29 New Jersey | | 30 New Mexico | | 31 North Dakota | | 32 North Carolina | | 33 New York | | 34 Ohio | | 35 Oklahoma | | 36 Oregon | | 37 Pennsylvania | | 38 Rhode Island | | 39 South Carolina | | 40 South Dakota | | 41 Tennessee | | 42 Texas | | 43 Utah | | 44 Vermont | | 45 Virginia | | 46 Washington | | 47 West Virginia | | 48 Wisconsin | | 49 Wyoming | | Totals: | Examined—Passed— | Examined—Failed— | Percentage of Failures | No. States Ex. in | Margin Number |
|---|---|---

Miscellany

The Problem of the Criminal.—The advanced view of the problem of the criminal, and the one which is being accepted by intelligent men, is that he should be returned to the world after his prison term, not a moral and physical wreck, but if possible, healthier in body and mind. In the new penitentiary being built in New York to take the place of the unhealthful and demoralizing Sing Sing, not all the ideas of the modern penologist will be practiced, but the health of the inmates will be considered and the men released will not have the germs of tuberculosis in their systems, as is now the case with many of them. New York is also establishing a colony for the mentally defective on the pavilion system now in use at modern hospitals for the insane and the tuberculous. Some such plan is sure to be followed in future in the imprisonment and reformation of law-breakers. By it the less hardened would be segregated and would issue forth repentant, and most important of all, with some of their self-respect remaining. When justice learns to punish a man without stripping him of all his self-respect, the problem will be a long way toward solution.—*Newark Evening News.*

Infantile Eczema.—Infantile eczema is found in all classes and conditions of society. In one case the child may be poorly nourished and cachectic while in another the baby may be fat and chubby. In the one case the child may be poorly nourished from the lack of a sufficient amount of wholesome diet, while in the other case there may be a lack of proper relation as regard digestion and assimilation.—C. R. Day, in *Journal of the Oklahoma State Medical Association.*

Appendicitis and Cystitis.—When a chronically inflamed appendix is adherent to the bladder, its removal will bring relief, provided that a colon bacillus cystitis has not already developed. In case of the latter event, operation must be supplemented by measures directed against the vesical infection.—C. W. Bonney, in *Therapeutic Gazette.*

Books Received

DIE UNTERSUCHUNG UND BEURTEILUNG DES WASSERS UND DES ABWASSERS. Ein Leitfaden für die Praxis und zum Gebrauch im Laboratorium. Von Dr. W. Ohlmüller, Verwaltungsdirektor des Virchow-Krankenhauses, und Dr. O. Spitta, Privatdozent der Hygiene an der Universität. Third Edition. Paper. Price, 12 marks. Pp. 422, with 113 illustrations. Berlin: Julius Springer, 1910.

MANUAL OF SURGERY. By Alexis Thomson, F.R.C.S., Professor of Surgery, University of Edinburgh, and Alexander Miles, F.R.C.S., Surgeon, Edinburgh Royal Infirmary. Vol. I, General Surgery. Pp. 886, with 339 illustrations. Vol. II, Regional Surgery. Pp. 861, with 227 illustrations. Third Edition. Cloth. Price, $7. Pp. 861, with 227 illustrations. New York: Oxford University Press, 1909.

HABIT-FORMING AGENTS: THEIR INDISCRIMINATE SALE AND USE A MENACE TO THE PUBLIC WELFARE. By L. F. Kebler, Chief, Division of Drugs, Bureau of Chemistry. U. S. Department of Agriculture. Farmers' Bulletin 393. Paper. Pp. 16, with illustrations. Washington: [Superintendent of Documents] Government Printing Office, 1910.

TRANSACTIONS OF THE AMERICAN PEDIATRIC SOCIETY. Twenty-first Session, Held at the Curtis Hotel, Lenox, Mass., on May 27 and 28, 1909. Edited by Linnaeus Edford La Fétra, M.D. Vol. XXI. Reprinted from *Archives of Pediatrics*, 1909-1910. Cloth. Pp. 207, with illustrations. New York: E. B. Treat & Co., 1910.

EMERGENCIES OF GENERAL PRACTICE. By Percy Sargent, M.B., Surgeon to Out-Patients, St. Thomas' Hospital, and Alfred E. Russell, M.D., Physician to Out-Patients' St. Thomas' Hospital. Cloth. Price, $5.50. Pp. 364, with 91 illustrations. New York: Oxford University Press, 1910.

CONSUMPTION: ITS PREVENTION AND HOME TREATMENT. A Guide for the Use of Patients. By H. Hyslop Thomson, M.D., Medical Superintendent Liverpool Sanatorium. Cloth. Price, $1. Pp. 75, with illustrations. New York: Oxford University Press, 1910.

PRACTICAL PATHOLOGY. A Manual for Students and Practitioners. By G. Sims Woodhead, M.D., Fellow of the Royal Society, Edinburgh. Fourth Edition. Cloth. Price, $11. Pp. 798, with 275 illustrations. New York: Oxford University Press, 1910.

THE EXPECTATION OF LIFE OF THE CONSUMPTIVE AFTER SANATORIUM TREATMENT. By Noel D. Bardswell, M.D., Medical Superintendent, King Edward VII Sanatorium. Cloth. Price, $1.50. Pp. 130. New York: Oxford University Press, 1910.

KARLSBAD. Klinische Studie über Wirkungsweise, Indikationen und Heilwert seiner Mineralquellen. Von Dr. Adolf Ritter, Grossh. oldenb. Medizinalrat. Prize Essay. Paper. Pp. 112. Munich: Druck von R. Oldenbourg, 1908.

TRANSACTIONS OF THE AMERICAN UROLOGICAL ASSOCIATION. Eighth Annual Meeting at Atlantic City, N. J., June 7 and 8, 1909. Edited by Charles G. Cumston, M.D. Cloth. Pp. 477, with illustrations. 1910.

THE REPORT OF THE PEDIATRIC DEPARTMENT OF A MATERNITY POLYCLINIC (DR. HILL'S CLINIC) AND SOME STUDIES IN INFANT MORTALITY. By Herman Schwarz, M.D. Paper. Pp. 28. New York.

SEVENTEENTH ANNUAL REPORT ON THE BIRTHS, MARRIAGES, DIVORCES AND DEATHS IN THE STATE OF MAINE. For the Year Ending Dec. 31, 1908. Cloth. Pp. 189. Waterville: Sentinel Publishing Co., 1909.

THE RELIGIO-MEDICAL MASQUERADE. A Complete Exposure of Christian Science. By Frederick W. Peabody, LL.B., of the Boston Bar. Cloth. Price, $1. Pp. 197. Hancock Press, Boston, 1910.

THE EXCURSIONS OF A BOOK-LOVER. Being Papers on LIterary Themes. By Frederic R. Marvin. Cloth. Price, $1.50 net. Pp. 331. Boston: Sherman, French & Co., 1910.

FIFTH ANNUAL REPORT OF THE HOSPITAL OF THE WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA. For the Year Ending May 31, 1909. Paper. Pp. 59. Philadelphia, 1909.

HYGIENE OF PREGNANCY. By E. H. Harris, M.D., Higginsville, Mo. Paper. Price, 10 cents. Pp. 23.

REPORT OF THE WHITE HOSPITAL, RAVENNA, OHIO. For the Year Ending Dec. 31, 1909. Paper. Pp. 14.

New Patents

Recent patents of interest to physicians:

946529. Making durable solutions of peroxid of hydrogen. Joseph Arndts, Paderborn, Germany.
946633. Hair tonic. Conrad Beyer, Cologne-Rodenkirchen, Germany.
947052. Stoppering device for bottles and the like to prevent fraudulent refilling. Lawrence Blew-Jones, Cornhill, London, England.
946853. Sanitary cuspidor. Harry G. Cathcart, Detroit.
946837. Fountain tonic applicator. Cordelia L. Common, Cleveland, Ohio.
946538. Scalp sprayer. Thomas A. De Vilbiss, Toledo, Ohio.
947153. Optical testing instruments. John F. Forth, Syracuse, N. Y.
946637. Physicians' card index. Charles F. A. Hall, Newburyport, Mass.
946940. Capsule filler. August R. Hesske, Philadelphia.
947078. Manufacturing lactic acid. Wilhelm Klapproth, Niederingelheim-on-the-Rhine, Germany.
947113. Appliance for the support of the foot. Anthony E. Magoris, Binghamton, N. Y.
946972. Massage apparatus. Coleman J. Manning, Medford, Mass.
946556. Thermocauter. John P. Muller, New Rochelle, N. Y.
946648. Syringe-bidet. Martha E. Reichelt, Newark, N. J.
946690. Safety methylated-spirit stove. Franz Szakall, Palota-Mjfalu and D. Kardos, Budapest, Austria-Hungary.
947609. Work-table for bars, soda-fountain-counters, and the like. Julius J. Betzold, St. Louis.
947551. Truss pad or cushion. Daniel O. Fosgate, Chicago.
947382. Surgical instrument. Justus C. Goosmann, Chicago.
947383. Adjustable bed attachment or rest for invalids. Gertrude M. Greaves, South Yarra, Victoria, Australia.
947412. Abdominal belt or support. Arthur B. Kendrick, East Orange, N. J.
947725. Surgical appliance. William C. Yates, Coalinga, Cal.
947726. Fumigating attachment. Ernest L. B. Zimmer, Minneapolis.
948158. Utilizing nitrous gases. Kristian Birkeland, Christiania, Norway.
948005. Massager. Andrew R. Campbell, Saskatoon, Saskatchewan, Canada.
948233. Body-brace. Robert F. MacClemmy, New York.
948234. Body-brace. Robert F. MacClemmy, New York.
948153. Vaporizer for medicines. Arthur G. Whitehorne-Cole, Brighton, England.
948305. Hernial truss. John W. Bunker, New York.
948306. Hernial truss. John W. Bunker, New York.
948443. Pasteurizing apparatus. Robert M. Cauffman and W. Best, Centerville, Mich.
948725. Apparatus for purifying liquids or semiliquids. Nat H. Freeman, Boulder, Colo.
948447. Operating table. Elmer E. Helfrich, Oklahoma, Okla.
948627. Rupture appliance. James C. Hogle and A. Meyer, St. Louis.
948456. Surgical clip applier. Abraham Le Witt, Hartford, Conn.
948930. Preparing medicaments. Alfred Meyer, Mulhausen, Germany.
948835. Ammonia condenser. Bruce Walter, Pittsburg, Pa.
948947. Catalytic and making same. Theodore J. Wrampelmeier, Berkeley, Cal.
949055. Apparatus for removing superphosphates from the decomposition chamber. Knut J. Beskow, Helsingborg, Sweden.
949258. Breast pump. Howard V. Brumley, New York.
949414. Nursing attachment. Hugh B. Cunningham, Arnot, Pa.
949623. Steam face-bath. Sanford J. Dalzelle, Beaumont, Tex.
949728. Supporter. Frederick C. Ferrell, Clifford, Ill.
949238. Massage apparatus. Mary A. Haines, Cleveland, Ohio.
949708. Package for chemicals. Charles F. Jenkins, Washington, D. C.
949236. Speculum and spatula. Samuel Kaplan and E. Bataulit, Geneva, Switzerland.
949539. Vaginal syringe. Oscar Katzenberger, Chicago.
949489. Nozzle. James G. Mastin, Chicago.
949302. Instrument for administering powder and other substances. Ludwig J. F. Nicolai, Dresden, Germany.
949716. Supporter. Arthur Quenzer, New York.
949661. Sterilizing apparatus. Alexandra Richter, Leipzig, Germany.
949550. Massage apparatus. John Sabatino, New York.
949093. Sectional form and truss support. George H. Sherwood, Dayton, Ky.
949134. Local anesthetic. Nathan Sulzberger, New York.